

PULP & PAPER INDUSTRY

"The Cellulose Age"

The Management Journal Cover-
ing North America's Wood Pulp,
Paper and Cellulose Industries.

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BUT—Where's the Pulp

NOT less than 200 new magazines are scheduled for 1946, according to the Publishers Advertising Credit Group, New York, PULP & PAPER INDUSTRY was told this month. Some of the titles will indicate how far publishers are stretching to find a new field: *Baby Talk*, *Baby Post*, *Predictions by Experts*, *Travel and Camera* are some of them. Bernarr McFadden has one coming up—and we're not kidding—called *For Men with Fat Wives*. They'll all be in the scramble for paper.

A significant note is the large number of magazines going into translated editions for foreign fields. *International Digest*, for instance, will have issues in French, Spanish and one of the Scandinavian. At least one trade paper group is following this trend begun by *Reader's Digest*.

Book salesmen (publisher's representatives) came to New York last month on a wave of optimism and persuaded the always careful book publishers to up print orders on almost every title in the catalogues. The men who peddle to the retail shops don't yet see the end of astronomical book sales. Example: there was going begging last month the business of a reputable book club for 150 tons per month of 50 or 60-pound antique finish, price adjustable, long term contract.

Today, the big problem is virtual impossibility of surmounting barriers to production under present price restriction. Tomorrow, however, the problem will be even more critical, from a long term point of view—it will be finding the wood and the pulp to meet the tremendous demand for paper.

Conservation Is Still a Virtue

LAST month in New York, J. Raymond Tiffany, general counsel for the book manufacturers industry, gently warned book publishers that in 1946 the lid is by no means off. "It is the height of folly," he said, "for a publisher to depart from the utmost in conservation at this time." The publishers should take steps, Mr. Tiffany said, as follows: limit the over-all size of books, number of pages, number of inserts, width of margins, bulk of stock, to the minimum . . . budget his overall production to take either fewer titles with more copies, or more titles with fewer copies."

And Frederic G. Melcher, president of the book trade journal, *Publishers' Weekly*, solemnly added: "It is going to be very difficult for any of us to act as if we each had responsibility for the whole fabric of the industry . . . good sense tells us to avoid the bulking papers . . . we cannot yet proceed as if there were no limit to materials or the machinery of production."

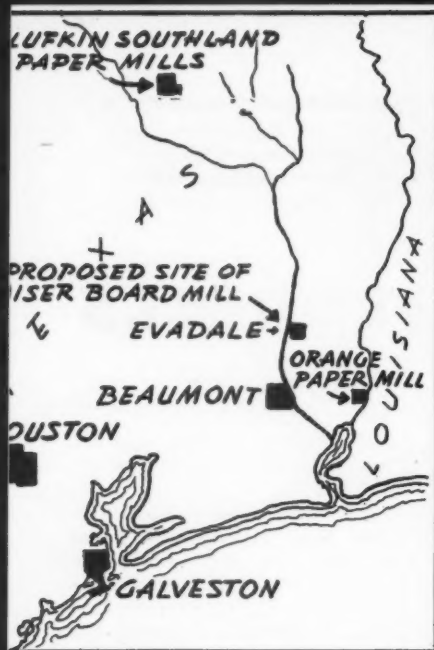
Behind such statements loomed the harsh facts of a tight pulp supply growing tighter by the week. There are many more titles on the book publishers' lists than there were last year. It began to look as if many of them might have a short life, and already many a publisher is moaning loud with a "runaway" on his hand, and not enough paper.

Good Psychology

"ARKANSAS Forestry Commission—Lookout Tower—Visitors Welcome."

That's how signs read at fire watchers' towers in the pine forests of that important southern pulp and paper industry state, recently toured by editors of this magazine.

There's good psychology in those signs. Anyone who accepts the invitation to visit cannot help but be impressed with the continuing source of economic wealth in the bright green forests that spread over many miles of that state. Every one is a sure convert to gospel of good forestry. Seeing is believing.



Kaiser May Build Board Mill in Texas

Definite interest is being manifested by the Henry J. Kaiser interests in south-east Texas as a possible site for a mill for the production of building board, shingles or other building materials in connection with plans for production of prefabricated houses, according to reports circulated in responsible quarters in the area. There had been previous reports that the Kaiser organization was considering a Texas site for a pulp mill.

The site for building board or materials manufacture being given the greatest consideration is at, or near, Evadale, on the Neches river. Evadale was at one time a site for a pine lumber mill, which has been cut out and dismantled.

The Neches river serves as the dividing line between Hardin and Jasper counties, the latter being to the east.

Evadale is on a hard-surfaced highway, seven miles east of Silsbee, which is 21 miles north of Beaumont, a deep water port.

E. A. Charlton, New York consulting engineer, understood to represent the Kaiser interests, attended the Forest Chemurgic Conference, held in Lufkin, Texas, January 24-25.

Southland Mills Order Machine; Power Plant and Recovery Units

Plans are being made for doubling the productive capacity of Southland Paper Mills, Inc., located at Herty, near Lufkin, Texas, according to announcement by W. L. McHale, mill manager.

This plant, the first and still the sole mill erected in the South for production of newsprint from southern pine pulpwood, has a current capacity of 170 tons per day. Sponsored by leaders among East Texas lumbermen, the Southern Newspaper Publishers' Association, and Perkins-Goodwin Co. (30 Rockefeller Plaza), New York, the mill's product has won favor in its area.

Its strength has resulted in infrequent delaying press web breakage. Short shipping distances has meant minimized damage to rolls in transit, hence less waste.

The enlargement of the plant has no relation to the plans of the Southern Newspaper Publishers' Association's plans for erection of a second newsprint mill in the Southeast, and will not be affected by the projected move.

The company's program calls for extension of the buildings of the paper mill to accommodate a Bagley & Sewall Fourdrinier newsprint machine of the same capacity as the present unit, additional grinders and accessorial equipment to double the groundwood mill capacity. An additional barking drum will be installed to serve the groundwood mill, and more water wells will be drilled.

More power for the enlarged plant will be provided by two General Electric 10,000 kilowatt turbo-electric generators which will be activated by steam furnished by installing

two Combustion Engineering Co. high pressure boilers. Accompanying condensing and water tower cooling equipment will be provided.

The general contract for the work has been allotted to Brown & Root, Inc., Houston, Texas, firm. Consulting engineering service is being provided by the George F. Hardy organization (441 Lexington Ave., New York).

In respect to forest resources, the Southland newsprint mill enjoys an enviable location both as to present and future pulpwood supply. Of the 548,480 acres comprising Angelina County (in which the mill is situated), 460,723 acres or 84% are devoted to forest land. Neighboring counties are hardly less advantageously equipped. The area produces a fast growing young pine relatively free of knots and having the qualities so desired for the production of newsprint.

The mill not only owns extensive forest of its own, but has a well forested area from which to draw pulpwood without going beyond a fifty mile radius. It has conserved its own stand from the first in order to provide farmers and other land owners with a cash market for their marketable forest cover.

Ernest L. Kurth, nationally known head of Angelina County Lumber Co., is president of Southland Paper Mills, Inc. Richard W. Wortham is executive vice president; W. L. McHale, mill manager; and, Charles Carpenter, general superintendent.

A description of the mill and its equipment was published in the August, 1945, issue of PULP & PAPER INDUSTRY.

Report on Use of Hardwoods In Southern Industry

Speaking at the recent Chemurgic Conference in Lufkin, Texas, Elwin E. Harris, chemist of the U. S. Forest Products Laboratory, referred to recent revelations of development of processes for developing hardwoods so as to give high yields of easy-bleaching, high-quality pulp that may be used in newsprint, book paper, and also for dissolving cotton. Yields for bleachable pulp from hardwoods when special conditions are used are higher than from softwoods because of the lower lignin content.

In the February PULP & PAPER INDUSTRY, we reported the beginning

of construction of the first hardwood pulp mill in the South—a \$2,000,000 plant being built at Georgetown, S. C., by Southern Kraft Div., International Paper Co., to make inner layer or corrugated rib for boxes.

The yields of bleachable pulp from four southern species, as reported by the Madison laboratory, were 56.9% from sweetgum, 61.4% from black willow, 60.7% from cottonwood, and 53.8% from bitter pecan.

The yield per cord of these woods is even higher because of the greater density of the woods.

Special processes have been developed for woods such as blackjack oak and sugarberry. Blackjack oak

gave yields of 1565 pounds of pulp per ton. These special pulps fit into all types of uses such as wallboard, corrugating board, newsprint, book and bond paper, and dissolving pulps for nitrocellulose, lacquers, cellophane, and rayon.

According to Mr. Harris, through research on processing techniques, about 20 species (in addition to spruce, hemlock, pine and fir) have been found suitable for pulp and paper products. Of the 20 species, 15 or more are hardwoods. St. Regis Paper Co. and Brown Co., in the north, have also started plants to use hardwood.

U. S. Government Is Considering Purchase of Paper Mills for Own Use

The United States Government is considering acquiring its own paper mills in order to assure it a continuing supply of paper.

It is only being "talked about" now but if the plan is approved, the government might either purchase or acquire by lease one or more mills to make printing papers, specialty papers, blank paper and wrapping stock.

A. E. Geigengack, public printer of the United States, made this startling disclosure at the American Paper & Pulp Association convention in New York Feb. 26 before top executives of many private companies. He said he thought "it could be worked out" with private industry supplying part of the government requirements in any emergency.

Up to the point when Mr. Geigengack made this disclosure he had been devoting a great part of his speech to deploring the inability of the government to get bids for paper. Thus, some observers thought, maybe, the government-owned mills idea was only tossed into the discussion to "needle" private industry a bit.

On a government proposal for 8,000,000 pounds of chemical wood writing paper for the Veterans Affairs Administration, he said bids were received on less than 1,000,000 pounds.

"I recognize that these appeals to the industry in emergencies do not constitute a satisfactory long-term arrangement," he said. "The life of the Civilian Production Board will be limited. Eventually, we will find ourselves in the position of being without power to direct that the government be furnished the needed paper. Eventually, also the government's needs will become routine, and the emergency argument will lose it force. So what then?"

"Well, the Government Printing Office has been considering whether it should follow the example of other publishers and acquire its own mills, thus relieving the industry of the necessity of supplying the government's admittedly uncertain and variable volume. If we should build up such an assured source of supply, the burden on the industry would be greatly reduced and we would need to come to you only for specialties. I am not at all sure that this is the right answer. If we should ever



GEORGE M. HUNT, native of Salem, Ore., who became Director of U. S. Forest Products Laboratory March 1, succeeding Carlile P. Winslow. Mr. Hunt has been on laboratory staff 33 years, as a chemist specializing in wood preservation. He served in Forest Service on Pacific Coast.

again have an emergency like that of 1941-1946, even our own mills would not be adequate for all our needs unless we built for a maximum output that would not normally be required. I think it could be worked out. For example, in normal years we could make paper for all Government use—blank paper, specialty forms, wrapping stock, and so on. In times of critical supply we could withdraw into the more limited field of printing papers, perhaps make only book papers.

"In considering the whole problem I should like you to think of this angle also and let me know your conclusions," Mr. Geigengack told the industry leaders. "I do not believe that the government should get into the paper business without the best advice of those who know the workings of the whole industry.

"Under War Production Board orders during the war period the government had access to 35 per cent of each mill's production. Most of this was taken by the Army and Navy. The requirements of the Army and Navy have greatly decreased and, as I said before, our own requirements have dropped from 1,500,000 to 500,000 pounds per day. The trade journals report that the mills are running to capacity, but we

are finding it difficult to get our share of the paper. Why are the mills not furnishing us with the paper we need to carry on important government functions? Is there anything which we can do to help you to help us?"

"No doubt, all of you have heard that the Government Printing Office had been selling paper, and the question naturally arises in your mind 'Why is the Government Printing Office selling paper on the one hand while it is at the same time asking the industry to furnish it with large quantities of paper?' It is true that we sold paper in San Francisco, Chicago, and New York. This paper had been purchased for the handling of printing to be done by commercial printers, and in most cases the stock was sold because it could not be economically used on the press equipment in the Government Printing Office. Any paper in the three cities mentioned which we could use was returned to Washington for use in our work."

Becker Says Canadian Curbs Would Endanger U. S. Mills

Folke Becker, president of Rhinelander Paper Co., Rhinelander, Wis., and of Trees for Tomorrow, Inc., told a Wisconsin state forester conference held in Wausau Feb. 12, that the time had come to face with realism the question of rebuilding a permanent and local source of raw material.

He referred to the necessity of some form of localized cutting regulations in order to give immature timber a chance to come back. He pointed out that larger mills are going to Canada for pulpwood. If Canada ever restricts the exportation of pulpwood except for owners of pulp mills in that country, he said, it would leave the Wisconsin paper industry facing serious raw material difficulties.

S. B. Bugge, president of Tomahawk Kraft Paper Co., Tomahawk, Wis., declared if all suitable land in the state were planted and properly harvested Wisconsin would have a good chance of producing all the pulpwood it needs.

E. B. Hurst, Consolidated Water Power & Paper Co., Wisconsin Rapids; George Kilp, Nekoosa-Edwards Paper Co., Port Edwards, and N. S. Stone, Mosinee Paper Mills, Mosinee, were other speakers.

Hammermill Movie

A film showing the Hammermill Paper Co.'s complete operation was shown to the Chicago Professional Paper Group at a recent meeting and Ellis Frampton, assistant general sales manager, made a talk.



OF INTEREST TO PAPER INDUSTRY are heat-sealing properties of Dow Chemical Co.'s Saran coatings. Paper bags coated with Saran F-122 latex are being sealed by the young woman in the picture at left. At right, are some typical test packages. Saran F-122, a latex, and Saran F-120, a solvent soluble resin, are now commercially available and are said to be highly resistant to solvents, oils, greases, acids and alkalis.

"Frozen Dinners" and Heat-Sealing Open Up New Vistas for Paper Industry

Dinner in a jiffy! It has been predicted for a long time, and now at long last — thanks to pulp, paper and resin—you have the "frozen dinner."

PICTURES ON OUR COVER show steps in the process—and the appetizing result.

Just a few weeks ago, the company which prepares these dinners, announced that it is also entering the field of single frozen food items.

The first of these is a 10-ounce package of frozen French fried potatoes, "sized for the home refrigerator." It is wrapped in cellophane—a wood pulp product—to prevent dehydration, with a heavy overwrapping of waxed paper and an outer box of cardboard.

It looks like a field day for pulp products of all kinds in this new frozen food business — resin-pulp plates, cardboard, Cellophane and waxed paper all figuring in the picture—and that's important news for the pulp and paper industry.

The complete dinner — also the single food items such as French fries — are cooked within several minutes of "done." When the housewife or restaurateur wants to serve it, all that is necessary is de-frosting and a little more cooking.

Pioneer in this field is the Maxson Food Systems, Inc., 460 West 34th St., New York City, with a plant in Queens Village, N. Y. It was there that pictures on our cover were taken.

Manufacturer of the paper plate for the "frozen dinner" is the Keyes Fibre Co., of Waterville, Maine, whose specialty line of long-fibered wood pulp molded products and fi-

brous plastics of the phenol-formaldehyde type were described and illustrated in the October, 1944, issue of PULP & PAPER INDUSTRY.

Of course, waxed paper is a product of increasing utility made by several companies in this industry and Cellophane is a Du Pont product, using high Alpha wood pulp as a base.

The "frozen dinners" were developed for the U. S. Navy (W. L. Maxson is a retired naval officer) but are regarded as having great possibilities for home and restaurant. The frozen French fries are already available to the public in the New York area.

The dinner plates are covered with a resin-glaze that resists freezing temperatures and the subsequent defrosting and final cooking. This glazing is done by the Maxson Corp.

Description of Cover Pictures

On our cover is a view of the "assembly" line at the Maxson plant—scrambled eggs, ham, apple sauce and roll are here assembled on the compartmented plate. Another view shows partially pre-cooked meals heat-sealed into laminated envelopes which are specially treated against moisture. Here they are stacked in racks and sent to the quick freezing and storage rooms. The "close-up" picture shows a steak, French fries and peas on a plate.

A large variety of menus, consisting of an entree and two vegetables in each case, have gone into hundreds of thousands of such dinners, prepared by Maxson for Naval Air Transport and other military units.

"Convenience foods" is what the company calls its program for single items such as the potatoes, with emphasis on foods which are difficult for the housewife to prepare. The publicity explains that the French fried potato was selected for a starter, because "in home preparation there is considerable waste of deep fat fry, which cannot be used again" and also few housewives own the "fat thermometers required to maintain the right temperature."

And naturally, they pointed out that their little package saves housewives from skin burns from splashing fat, strong odors in the kitchen, potato peeling and eye (potato) removing, etc.

Dow Seals With Saran

Improved methods in heat-sealing of envelopes has opened up many more new practical uses for paper. An example are laminated envelopes for the "frozen dinners" shown on the cover.

There are other pictures on this page showing paper bags heat-sealed with Saran coating resins developed by the Dow Chemical Co., of Midland, Mich. Sealed bags containing almost anything from water or turpentine to carbon tetrachloride or acetic acid, as shown in the picture.

Persons who attended the plastics session of TAPPI at the Commodore in New York during "Paper Week" in late February, heard a discussion of the work done by Dow chemists along this line. Electronics sealing of Saran film and a new spray-package technique for extended storage or shipping will be shown by Dow at the Packaging Exposition

in Atlantic City April 2-5.

Waterproof properties of the Saran F-122 latex and F-120 (a solvent soluble resin) coatings approach metal foil. They are odorless, tasteless, non-toxic and resist solvents, oils and acids. They are likely to give the paper produced by this industry more uses than it has had before.

The Keyes Fibre Co., mentioned previously as the original producer of the "frozen dinner" plate, has made resin-pulp products such as ship valve wheels, housings for radios and refrigerators, trays, bowls, etc., which have remarkable strength, luster and resistance. This company has been making the ordinary throw-away pulp plates for 23 years, but its resin combination lines are products of the past six years.

D. S. Brigham is president and W. E. Parsons is vice president and general manager of this company. E. E. Sawyer, who followed Mr. Parsons through the University of Maine, joined the Keyes Fibre organization in 1929 and has been



A FEW MAXSON DINNERS, ON KEYES FIBRE PLATES, resin-glazed (the plates, not the food!), are shown below.

Partially pre-cooked before freezing, they have now been de-frosted and re-heated for final cooking. Also shown are cardboard cover and plastic rim that binds plate and cover. The frozen foods field promises to open up many new and interesting uses for paper.

chief chemist in charge of research and development. The resin pulp products referred to above are the result of research and practical development by Mr. Sawyer, assisted by W. H. Randall, chief engineer, and G. R. Johnson, manager of man-

ufacture of the Keyes Fibre Company. The trade name of this material is Kys-Ite, and it is highly approved for use where both unusual strength and attractive appearance are the two principal requirements.

KVP Espanola Mill Starts Partial Production; Will Install Shartle-Dilts Pulp Pre-Treatment

Construction and installation of equipment at the Espanola, Ont., mill of Kalamazoo Vegetable Parchment Co.—KVP, Ltd.—is proceeding according to schedule. Groundwood production has already been started there, and full operation will probably be under way by the time originally set by President R. A. Hayward—about midsummer.

The Espanola mill will produce approximately 200 tons of bleached and semi-bleached sulfate pulp daily when in full production and this will supply a substantial part of the requirements of the parent company's plant in Kalamazoo, Mich.

A pre-treatment system is being installed at Espanola. Pre-treated pulps at specified freeness and strength development characteristics will be prepared in the lap and sheet form for shipment to Kalamazoo. The contract for this project has been awarded to Alexander Fleck, Ltd., Ottawa, the Canadian associate manufacturers for Black-Clawson, Shartle and Dilts equipment. The system will be completed during September or October.

This stock preparation system will be operated continuously and be completely equipped with process control instruments and remote control stations, centralized at an operating panel adjacent to the technical control laboratory. Equipment



BEN C. AVERY, who will join Kalamazoo Vegetable Parchment Co. April 1, as general manager of operations at Espanola, Ontario. Until recently Mr. Avery was chairman, Woodlands Section of the Canadian Pulp and Paper Association, and for several years woods manager of Great Lakes Paper Co. A complimentary dinner in his honor was given at Fort William on February 13.

will consist of eight No. 1 Dilts hydrafiners driven by 250-h.p. motors and equipped with hydraulic remote control means for adjusting the hydrafiner plug setting.

The Hydrafiners will operate as

individual units in parallel arrangement and each unit will be supplied from a common constant level headbox.

Other Equipment

Description of other major equipment going in the new KVP mill was given in the July, 1945, issue of PULP & PAPER INDUSTRY. Interesting new equipment included a 500-foot steel-tube enclosed chip conveyor and walk, designed by Otto C. Schoenwerk, the consulting engineer; a new 160-inch Kamy pulp machine and a specially designed six-stake continuous and batch bleach plant with equipment from Sherbrooke Machineries, Ltd., and Waterous Co.

Fibre Making Processes, Inc., is supplying circulating and indirect heating systems for five digesters, a blow steam condenser system and relief steam condenser.

Steel tankage is supplied by Horton Steel Co., Canadian affiliate of Chicago Bridge & Iron Co., causticizing equipment by The Dorr Co.; Oliver washers by E. Long Co., and recovery furnace and steam generator by Combustion Engineering.

Mrs. Fred Haynes Dies

Mrs. Fred Haynes, wife of the superintendent of the Abitibi Power & Paper Co. mill at Iriquois Falls, Ont., died Feb. 10. She was buried in the mill town of Cheboygan, Mich., her former home.



LEADERS WHO ATTENDED PAPER WEEK IN NEW YORK (left to right):

D. K. BROWN, President, Neenah Paper Co., who bowed out as President of APPA; JOEL S. HARTMAN, President, Barclay Tissue Mills, Brooklyn, who was re-elected President of The Tissue Association; JAMES L. MADDEN, President, Hollingsworth & Whitney Co., and ROBERT B. WOLF, Manager, Pulp Div., Weyerhaeuser Timber Co., who were elected Directors of APPA and also Regional Directors for the U. S. Pulp Producers (Mr. Madden for the South and Mr. Wolf for the Pacific Coast); RUSSELL L. WINGET, Exec. Sec'y., National Council for Stream Improvement; and A. K. NICHOLSON, Vice Pres., Hollingsworth & Vose Co., East Walpole, Mass., elected a Director of Pulp Consumers Assn.

PAPER WEEK DELEGATES WORRY OVER DWINDLING PULP SUPPLY

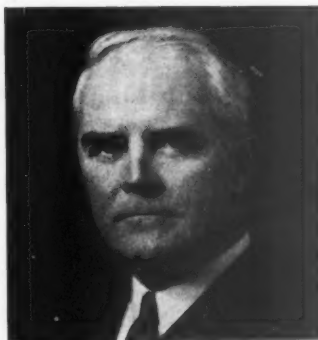
Phenomenal Attendance Reflects Eagerness for Exchange of Information After War Years... Increasing Consideration Given Public Relations... Swedish Pulp Discussed (See Page 69)

Top pulp producers and papermakers, many of the leading technical executives, and scores of their supply and equipment manufacturers gathered the last week in February in New York to attend the first postwar annuals of AP&PA and TAPPI—bringing to life again the nation's famed Paper Week.

With them in both spirit and flesh were men from other fields which have come to realize more fully how inextricably their destiny is woven with the future of the pulp and paper business—the big magazine publishers, the newspaper publishers, representatives of Canada's paper industry, visitors from foreign countries, forestry experts, research institute scientists, even an admiral of the U. S. Navy come to say "Well done!"

The attendance was phenomenal and reflected the eagerness with which the industry flocked to Paper Week after the long war period of restricted travel and its consequences. Registration for the TAPPI luncheon, for example, exceeded 1400, an all-time high and far above the 800 total of 1944.

Some of the fullest attendance and most significant gatherings were in upper rooms or foyers outside the Commodore's Grand Ballroom or its East and West Wings, in the crowded hallways beyond the Waldorf's Jansen Suite and Carpenter Salon, where a lot went on that will shape the course of the industry in the next twelve months. For this was a convention deadly serious in its intent to produce more paper.



REUBEN B. ROBERTSON, Champion's Executive Vice President, is new APPA Proxy.

Over every session, no matter how remote the subject from the broader problems of the industry, the fact of inadequate pulp supply hung as still and visible as the cigar and cigaret smoke in the stuffy meeting rooms. Everybody knew it, but Oliver M. Porter, executive director of the U. S. Plywood Producers Association, put it into words. The industry during the last quarter of 1945 had been producing at the rate of 18,000,000 tons of paper and board per year. There was no doubt that the market could readily absorb a domestic production in excess of 18,000,000 tons this year. But his analysis at the annual meeting reached an inevitable conclusion: the "total new supply of pulp probably will not be sufficient to sustain paper and paper board production at the projected rate . . . and the supply of market pulp will pinch down to the point of serious inadequacy."

With that serious fact in the air, the climate for OPA at the convention waxed exceedingly warm. And it was that fact, too, which undoubtedly made the hydraulic log barker sessions of the TAPPI program, with emphasis on wood savings, the best attended and probably the liveliest from the standpoint of discussion.

Straight from the shoulder shot D. K. Brown, retiring president of AP&PA, at the annual luncheon: "Without presuming to take issue with the proposed continuance of government controls, let us not forget that prices are the safety valves of our economic system and it has never been a good policy to sit on a safety valve. The real motive of some who would retain these controls is to replace our free enterprise system with a controlled economy. This means loss of freedom (to which we submitted in order to win the war), but we have all seen what happens in other countries when government directs the economic activities of a people, and that is collectivism."

The president of Neenah Paper Co. went on to say that the industry does not want "monopolistic control in any form" but only "a fair opportunity with American free labor, free enterprise and free initiative, and we will then do our part in building up a real peace-time economy both for ourselves and the world at large."

Controls were also discussed by a guest speaker, W. G. Fuller, president of Curtis Publishing Co. Al-



MORE PICTURES IN NEW YORK BY PULP & PAPER INDUSTRY cameraman (left to right): DR. JACOB DAHL, of Norsk Hydro, who until recently operated the only pulp (sulfite) mill with ammonium base cooking in world at Toten, Norway (he talked about it at a meeting); GUST JOHANSON, Penabscot Chemical Fibre Co., discussed predominant problems in a sulfite mill; J. F. HALLIDAY, Manager, Empire Box Co., Garfield, N. J., with REX VINCENT, of Bulkley, Dunton Pulp Co., who warned against premature "burial" of sulfite industry; A. E. CADMAN, Gen. Mgr., Canadian Pulp & Paper Association, and GEORGE BARBER, Secretary, Spruce Falls Power & Pulp Co., Kapuskasing, Ont., who were Canadian visitors.

though he expressed himself as representing the magazine field, unofficially, he was present, too, as a papermaker, for his firm recently acquired operations of the New York & Pennsylvania Co.

"There is much economic and social ignorance today. It is widespread in all walks of life," Mr. Fuller said. "There are those who take advantage of this ignorance and become false leaders. Some are sincere, but mistaken. Indeed, they are the most dangerous. The OPA leaders, for example, claim to guard us from inflation. . . . They are trying to succeed where 2000 years of history shows innumerable similar attempts—but never one success. The only peacetime way to control inflation is the logical, time-proven way of stimulated production and free enterprise."

The Curtis chief pointed out that the paper industry and the publishing industry had a clear joint responsibility, the dissemination of information and truth. Mr. Fuller's vigorous premises were applauded wholeheartedly. Some wondered if Mr. Fuller's speech might herald in big circulation print what he had just said in private company: the average man must be told that paper means a lot to him, and might have to cost a little more. More than one papermaker could recall that most of the big magazines and newspapers have been treating Chester Bowles and his staff with tenderness, knowing that to many a little subscriber he is a symbol of protection from who-knows-what.

Plenty of Optimism

Despite the ogre of dwindling supplies and its attendant problems, there was plenty of optimism at the meeting. The speeches of Mr. Brown and Mr. Fuller were not entirely on the subject of OPA. Both saw a big future for the industry, and that forward-looking spirit was reflected throughout Paper Week. Every-

HIGHLIGHTS FROM REPORT OF D. K. BROWN, PRESIDENT, AP&PA

1. The experience of the war years has demonstrated that no longer can management confine itself to the problems of its own company, but that to act with intelligence it must keep informed as to the industry's broad economic and social trends.

2. As to the immediate future, the prospects are that volume of production and consumption will both be large for some time to come. Low inventories must be rebuilt to a reasonable working basis, which together with increased circulation and advertising and new publications already planned will require full operations of present and contemplated equipment.

3. A study of new machines scheduled for installation during the com-

ing year altogether with the rebuilding of existing machines shows that while the increased capacity of individual companies may be fairly large, yet the overall increase is only a small percentage of present production in any group, probably not more than the growth of our population during the war period.

4. A year ago I cautioned against over-expansion without having the assurance of a continuing wood supply therefore. The increased interest in fire prevention and replanting is to be commended, for with the new era of wood utilization . . . it is just good business and common sense to work for a sustained yield and keep pace in forestry in step with the technical laboratories.

where were evidences of big war-developed markets to hold, and even bigger ones to catch in the postwar era. The blot of work stoppage through strikes, the plague of every other big industry, was almost invisible on the paper escutcheon.

E. G. Amos, secretary of the industrial relations group of AP&PA, had few strikes to report and could say with sincerity that the labor picture looked healthy. Wages have increased, he pointed out, and they have increased "to the point where, in some quarters, it requires resourceful management to meet payroll demands as well as rising costs of materials."

When Reuben B. Robertson was introduced at the AP&PA luncheon as the new president of the association he stated briefly that he wished to make no pre-performance claims. But, like his confreres, he was optimistic about the future and nobody doubted that the leadership of the vice president and general manager of Champion Paper & Fibre Co. would be a dynamic one.

In closing his annual address, President Brown paid special tribute to the re-elected secretary-treasurer, E. W. Tinker and his staff.

There was much evidence of a unity of interest in the paper industry of Canada and the U. S. throughout the meeting. Robert M. Fowler, president of the Canadian Pulp & Paper Association, an honor guest at the AP&PA luncheon, expressed this verbally to the attendance, and repeated the message of good will at the TAPPI luncheon. The international flavor was further carried out when the TAPPI medal was awarded to Canadian-born William G. McNaughton (see January, 1946, PULP & PAPER INDUSTRY) a graduate of McGill University and long prominent in the paper industry on both sides of the International boundary. Many a Canadian executive came south for Paper Week in the U. S. right on the heels of a rousing gathering of the Dominion's association in Montreal late in January.

The convention was given what will probably be the last military flavor for a long time to come when Rear Admiral H. D. Nuber appeared to present to TAPPI a certificate of achievement following the nomination of the Navy bureau of supplies and accounts. The presentation was made at the TAPPI luncheon, and the previous week Secretary R. G.



SPEAKERS AT NEW YORK TAPPI (left to right):

HAROLD BIALKOWSKY, Tech. Director, Everett, Wash., mill, Weyerhaeuser Timber Co., who discussed sulfite production records; **E. B. BROOKBANK**, Mead Corp., who discussed industrial uses of alkali lignin; **JOHN N. MCGOVERN**, Technologist, Pulp-Paper Div., Forest Products Lab at Madison, talked on use of bleached aspen semi-chemical pulp in groundwood bookpaper; **COL. HARRY W. JOHNSON**, of Montreal, Sutherland Refiner Corp., who presented paper on continuous beating and refining; **J. A. FRITTS**, Allis Chalmers Mfg. Co., discussing hydraulic barking of small logs, and **S. I. ARONOVSKY**, U. S. Northern Regional Agricultural Dept. Laboratory, Peoria, Ill., Chairman of Fibrous Agricultural Residues Committee.

Macdonald had received on behalf of the organization the Army's tribute: a certificate of achievement from the quartermaster subsistence research and development laboratory for aid in the food protection program.

Public Relations

One of the most interesting developments this year at the AP&PA sessions was the full flowering of what might be termed a public relations attitude—and yet the term “public relations” is too restricted in meaning to describe what took place. Retiring President D. K. Brown took note of it in his formal address when he said, “No longer can management confine itself to the problems of its own company.”

All around the great circle of the industry the public interest and opinion were impinging on the business of the associated units, and this fact was manifest to a greater or lesser degree in all the closed sessions of AP&PA. That there are dangers as well as benefits in operating within the public view, many a conservative executive was still aware. But none with their eyes and ears wide open came away from the 1946 Paper Week still holding to the belief that the general public would not henceforth be “in” on the industry.

Two developments at the AP&PA sessions will suffice to illustrate the growing awareness that pulp and paper has a selling job to do at both ends and in the middle. For example, at the instance of the public affairs committee, of which Cola G. Parker, of Kimberly Clark Corp., is chairman, the AP&PA Board of Governors has in the discussion stage a resolution which would instruct the association staff to bend strong and specific effort toward the lifting of price ceilings on paper.

Roughly, the committee's arguments were as follows:

1. The great demand for paper is not a war baby; rather, it is based upon postwar dreams and aspirations of other businesses, such as publishing, food processing, etc. Therefore, the argument runs, what genuine right has an agency such as OPA, set up to control maladjustments of a war economy, to hold back the normal peacetime growth of an industry basing its plans on a peacetime economy?

2. The cost of paper in the grand total of the average man's cost of living is so small as to be negligible.

3. OPA has not thus far been successful, for its figures claim there has been only an approximate 5 per cent rise in paper costs, whereas actually, it is generally understood in the industry, the rise has been much higher—several times higher—due to numerous shifts in tonnages from low end items to higher grades.

4. The disappearance of low end items from the market has not been to the benefit of the average man.

Thus ran some of the arguments in general, and there were more. Inherent in all the arguments was, not the logic of profit and costs, but the logic of attention to the public.

For another example, the increasing awareness of the proximity of industry and public was one of the chief problems to engage the AP&PA committee on biological control. Widening is the breach between the primary mills and the package converters as to what constitutes suitable standards for food wraps and packages. The package people, up in the front line in the tussle with the public and beset by competitors in glass and tin, have long held to a sanitary code setting up mandatory terms for paper and packages and based on a bacteriological count. The primary mills have held that a bac-

teriological count, minus additional facts, is meaningless.

Some months ago the technical committee of AP&PA, mindful of ever larger markets for processed foods, instructed the biological control sub-committee to review its found facts on paper for wrapping and packaging foods. At Paper Week there was laid before the Board of Governors a set of facts which were reported on favorably; but handling of wrapping materials, the technical committee felt, called for something more than a fact-finding committee. It recommended a committee of policy—and that committee, if and when formed, will feel down its collective neck not only the stare of the public but probably competitors in the package field as well. Almost everything that passed in front of the AP&PA Board of Governors had a “public awareness” aspect.

Compared with the set of headaches engendered by these problems, the straight and unblushing “public relations” programs discussed during Paper Week looked like child's play. But the looks were deceptive. There was plenty of work to do, and the industry rolled back its cuffs to do it. Approved was the program of the public relations sub-committee which was headed up by Arthur J. C. Underhill, public relations director of Rayonier, Incorporated, as chairman.

In brief this program called for moderated but thorough public relations program through the industry's normal and natural outlets to the public, utilizing facilities already existing. Recently the industry through its association had approached something else tentatively—an independent public relations counsel firm. The firm came up with a million dollar idea. Trouble was, the idea, would cost almost a million.

The cost of the approved within-

WRITING PAPER GROUP HONORS DOBROW

The Writing Paper Manufacturers is said to be the oldest trade association in the U. S. Certainly on its 85th year it is right up there among the most venerable. Thus the honor that came to its secretary during Paper Week was doubly significant.

On the occasion of the anniversary dinner H. H. Hansen, president, presented to Morris C. Dobrow a unique plaque in recognition of his services. The plaque was for "constructive thinking and performance on behalf of the Fine Paper Industry through the war years" which resulted in "a far more significant contribution to the successful prosecution of the war than would otherwise have been possible, and at the same time maintained the industry on an even keel during the most troubled period in history."

Mr. Dobrow's contributions have been specific. Some of them: Early recognition of the need for conservation of chlorine; realization and action on the fibre shortage long before the government took action; individual effort toward convincing the dominant government agencies of the need of fullest production by all member mills of his association; his work with the government resulting in new cotton becoming available to replace rags at a time when lack of cotton fiber was serious.

the-industry program will be nominal as public relations programs go—about \$50,000 a year. Much responsibility will be held firmly to the individual firm or unit. It's a program that is self-propelled, self-contained, and it can be expanded when warranted. Its purpose: to build prestige for the industry and its policies.

At the beginning end (trees) of public relations, the industry had another look at American Forest Products Industries. Colonel W. B. Greeley, former U. S. Chief Forester and for 20 years secretary-manager of the West Coast Lumberman's Association, was made chairman of the AFPI board of trustees during Paper Week.

On March 1 at the Waldorf, he presented with Chapin Collins, secretary-manager of AFPI, the organization's revised case. There will be no fighting against legislation, no defense of bad practice, no exaggeration of good forestry practices. Emphasis will be placed on reaching the private owners of timber, including the tens of thousands of farmers with wood lots. The cost: \$250,000 annually this year, \$450,000 or less eventually, to be shared by AFPI members drawn from all wood-using industries. While no new

commitments were made or asked for during Paper Week, most of the industry seemed to like the idea of a new and refurbished AFPI and have considerable confidence in Colonel Greeley.

Also in the public relations picture is the program of "getting the wood" designed chiefly for eastern and southern mills. A war-born idea, it is continued by Frank Block and Associates and involves about \$200,000 annually. Other public relations firms in New York City (where public relations counsellors are barely outnumbered by their prospective customers) were on the outside looking in. They were suddenly mindful that the pulp and paper industry has a public which stretches from the gallused farmer with a wood lot to the city female who uses facial tissue—with government officials, both elected and appointed, scattered in between. But their chances were slim. The public relations program of the industry was pretty well crystallized this Paper Week of 1946.

Public relations, too, in a sense, were the meetings of the ever more efficient National Council for Stream Improvement. Formed as a national organization three years ago, the National Council now con-



M. C. DOBROW, who received plaque for his services to Writing Paper Manufacturers Association.

cerns itself with the problems of several hundred mills with their variety of wastes, in seven regions which include 35 states. Today its board of governors and regional officials are some of the most prominent men in the industry. This Paper Week the board of governors, presided over by George E. Dyke, president of Robert Gair Company, approved a budget of \$140,000, about two-thirds of which will be used for research and much of it on the West Coast.

Kiev Larson Honored

During Paper Week the men who were members of the pulp allocation committee decided to continue the tradition of a periodic dinner at the Harvard Club followed by a light opera picturing of wartime trials and peace-time aftermaths of allocation. Of the more than fifty who went to the dinner none had a more innocently anticipatory air than Kiev Larson, sales manager for Weyerhaeuser Timber Company's pulp division. He expected to have a good time, but what he did not expect to be plopped at the right hand of banquet chairman, Robert H. Evans, of Riegel Paper Corp., as the guest of honor.

Mr. Larson was consultant to the chief of the pulp allocation office of WPB, and the chief at war's end was Mr. Evans.

MEN HONORED AT PAPER WEEK MEETING (left to right):

R. A. McDONALD, Executive Vice President, Crown Zellerbach Corp., elected a Director of APPA; JOSEPH S. MILLER, head of New Haven Pulp & Board Co., New Haven, Conn., and Vice President of National Paperboard Assn., chosen a Director of Pulp Consumers; WILLIAM G. McNAUGHTON, News Print Service Bureau, New York, who was awarded 1946 TAPPI Gold Medal; W. S. LUCEY, Vice President of Rayonier Incorporated, elected Director-at-Large of U. S. Pulp Producers; ARNOLD B. HUYSSOON, Continental Paper Co., Ridgefield Park, N. J., re-elected Vice President of Association of Pulp Consumers, and C. V. MAUDLIN, Sec'y-Treasurer at its Washington office.



PLANS MADE FOR COAST MEETINGS AT BELLINGHAM AND GEARHART

Plans are being completed for the Pacific Coast TAPPI meeting at Bellingham, Wash., on Tues., April 2 and for the big annual Joint Spring Meeting of the Coast Superintendents and TAPPI at Gearhart, Ore., May 16-18.

The Bellingham meeting will be at the Leopold Hotel, at 2 p. m. An afternoon roundtable on "Forest Management" will be directed by Ed Heacox, Weyerhaeuser forester. At the dinner, arrangements were virtually completed to have as speakers Harry Cain, former Tacoma mayor, and Col. W. B. Greeley, chairman of American Forest Products Industries, Inc., trustees and former secretary of the West Coast Lumbermen's Assn.

The Gearhart meeting, beginning Thursday evening, May 16, will be under the general chairmanship of Charles E. Ackley, of the Lebanon, Ore., Crown Zellerbach mill, who also heads the Coast superintendents.

Aiding him as chairmen of various activities are:

Registration—Milton J. Maguire, resident manager, Hercules Powder Co., Portland, Ore.

Entertainment—Ray Smythe, Rice Barton Corp., Portland, representative.

Publishing and printing—Fred Armbruster, Dow Chemical Co., Seattle.

Ladies' Entertainment—John Fullton, manager, Pacific Coast Supply Co., Portland.

Finances—Harry Richmond, chief engineer, Electric Steel Foundry Co., Portland.

Tickets—Norman Kelly, manager, Longview mill, Pulp Div., Weyerhaeuser Timber Co.

Golf—William C. Marshall, Pacific Coast Supply Co., Portland.

Papermakers' program—Gus Ostenson, paper mill supt., Camas mill, Crown Zellerbach Corp.

Pulpmakers' program—Gerald Alcorn, manager, Everett mill, and Bill Haverman, supt., Longview mill, Weyerhaeuser Timber Co., and Max Oberdorfer, asst. mgr., St. Helens Pulp & Paper Co.

These two programs will be held on Friday and on Saturday it is planned that Messrs. Ostenson, Alcorn and Haverman, with assistance of Chairman Ackley, will program a joint meeting "where they can scrap it out together."

Bob True, General Dyestuff Corp., secretary of TAPPI, had made reservations for all rooms in two hotels at the Pacific Ocean resort town, which was expected to be adequate for a large attendance. Other rooms at Seaside, a few miles away, would be available.

Officers Elected At "Paper Week"

In addition to the election of Reuben B. Robertson, of the Champion Paper and Fibre Co., Hamilton, O., as president of the American Paper and Pulp Association for the ensuing year, and of Cola G. Parker, of the Kimberly-Clark Corp., Neenah, Wis., as first vice president, the following vice presidents of the Association were elected in New York last month:

D. K. Brown, Neenah Paper Co.
Hugh J. Chisholm, Oxford Paper Co.
R. K. Ferguson, St. Regis Paper Co.
P. H. Glatfelter, P. H. Glatfelter Co.
J. H. Hinman, International Paper Co.
D. S. Leslie, Hammermill Paper Co.
David L. Luke, Jr., West Virginia Pulp and Paper Co.

R. A. McDonald, Crown Zellerbach Corp.

J. L. Madden, Hollingsworth and Whitney Co.

Dwight L. Stocker, Michigan Paper Co.
George R. Wallace, Fitchburg Paper Co.
R. B. Wolf, Pulp Division, Weyerhaeuser Timber Co.

E. W. Tinker was re-elected executive secretary and treasurer.

At the yearly meeting of the Kraft Paper Association, George Stuhler, of Southern Kraft Division, International Paper Co. was elected president, succeeding Willard J. Dixon, of St. Regis Paper Co., who has headed the Association since June, 1942. Harold O. Nichols, of the Crown Zellerbach Corp., was elected vice president.

The Newsprint Manufacturers of the U. S. elected John L. Hobson, of St. Croix Paper Co., Boston, president, and J. D. Zellerbach, of Crown Zellerbach Corp., San Francisco, vice president.

The Association of Pulp Consumers, Inc., elected Maxwell D. Bardeen, of the Lee Paper Co., Vicksburg, Mich., president for 1946-47, succeeding Walker Hamilton, of the Riegel Paper Corp., New York, and re-elected Arnold B. Huyssoon, of the Continental Paper Co., Ridgefield Park, N. J., vice president, and C. V. Maudlin, Washington, D. C., secretary and treasurer.

Regional directors elected by the U. S. Pulp Producers Association: New England, Amor Hollingsworth, Penobscot Chemical Fibre Co.; Middle Atlantic, Norman W. Wilson, Hammermill Paper Co.; South, James L. Madden, Hollingsworth & Whitney Co.; Lake States, Stuart B. Copeland, The Northwest Paper Co., and West Coast, Robert B. Wolf, Weyerhaeuser Timber Co.

Directors at large chosen were: Downing P. Brown, Brown Co.; Alexander Calder, Union Bag & Paper Corp.; J. M. Conway, Hoberg Paper Mills; U. M. Dickey, Soundview Pulp Co.; R. K. Ferguson, St. Regis Paper Co.; David Graham, West Virginia Pulp & Paper Co.; Stuart E. Kay, International Paper Co.; W. S. Lucey, Rayonier Incorporated; Cola G. Parker, Kimberly-Clark Corp., and Lawson Turcotte, Puget Sound Pulp & Timber Co.

Oliver M. Porter was re-elected executive director.

New president of the Salesmen's Association of the Paper Industry is Forrest D. Patterson, Flambeau Paper Company, formerly western vice president of the salesmen's group. He succeeded Stanley O. Styles at an election held during the annual meeting at the Waldorf-Astoria, New York City, during Paper Week.

Thomas C. Hanna, Philadelphia representative of the Missisquoi Corp., received the President's Award for outstanding achievement on behalf of the association. Mr. Hanna formed the Philadelphia group and collected a nucleus of 12 members for it.

The Writing Paper Manufacturers Association re-elected H. H. Hanson, W. C. Hamilton & Sons, president for the ensuing year. M. D. Bardeen, Lee Paper Co., and W. J. Garrity, Munising Paper Co., were elected vice presidents, and M. C. Dobrow, executive secretary and treasurer.

The Tissue Association continue in office for another term President Joel Hartman, who is also president of Barclay Tissue Mills, Brooklyn, N. Y. Other officers: E. E. Grant, president of Crystal Tissue Co., Middletown, N. Y., vice-president, B. F. Picola, treasurer, and Ross A. Fife, executive secretary.

MEETING OF THE TECHNICAL PLANNING AND BUDGET COMMITTEE of National Council for Stream Improvement, Hotel Waldorf-Astoria, New York, during Paper Week: Seated (left to right): STEWART CRAWFORD, Chesapeake Corp.; DR. MALCOLM TAYLOR, Union Bag and Paper Corp.; FRED DROTT, Champion Paper & Fibre Co.; DR. HARRY GEHM, Technical Advisor, National Council; RUSSELL WINGET, Executive Secretary, National Council; GEORGE DYKE, Robert Gair, Inc., Chairman of Board of Governors; CLYDE MORGAN, Eastern Corp.; ANTHONY PESCH, Southern Kraft Division, International Paper Co.; ALLAN GOLDSMITH, Mead Corp.; John Hobson, St. Croix Paper Co.; PAUL KOENIG, P. H. Glatfelter & Sons; DWIGHT STOCKER, Michigan Paper Co.

Standing (left to right): D. APPLETON, Oxford Paper Co.; MAJOR WILLIAM MOGGIO, Southern Field Representative of National Council; D. L. OWENS, Hinde & Dausche Paper Co.; JOHN TRAQUAIR, Mead Corp.; HARRY CARRUTH, Union Bag & Paper Corp.; ALLAN ABRAMS, Marathon Corp.; FRANK YOUNGMAN, Crown Zellerbach Corp., and CHARLES GRONDONA, Crown Zellerbach Corp.





GUNNAR W. E. NICHOLSON, Vice Pres., Union Bag & Paper Corp., who took over as President of TAPPI; BILL BARBER, Director, Crown Zellerbach Central Tech. Dept., TAPPI Executive Committeeman; P. GOODING, Strathmore Paper Co., Co-Chairman of a General Session; HARRY F. LEWIS, Institute of Paper Chemistry, Chairman of Fundamental Research Session; R. A. MORGEN, Univ. of Florida, Co-Author of paper on Protein Feed from Sulfite Waste Liquors; and ED H. NUNN, Tech. Director, Crown Zellerbach Corp., West Linn, Ore., who is one of those who traveled farthest to attend.

REVIEW OF N. Y. TAPPI MEETING

"Decibel" Rating for Some Sessions Was High, Especially Those Stressing Material Savings and Recovery ... But "Glut" of Papers Included Many That Might Go Better at Regional Meetings.

More than 140 technical men were authors or co-authors of almost as many papers presented—a few by title only—at the 1946 Paper Week. Consensus was that the general standard was a little below the average set up by other years, but this does not mean that the program was without concise and brilliant treatments of important subjects. By and large, however, the opinion of experienced TAPPI convention-goers was that the majority of the papers did not add to existing knowledge, went over a lot of ground already covered.

If it is true that the standard was lower than average, the reason is not far to seek. For the past several years every technical man worth his salt has been attending to immediate problems, had little time for long-range experimenting or planning or thought. One thing is certain: this year's big national meeting brings to point more forcibly than ever the tremendous importance of the regional and sectional gatherings. In making up so huge a program, subdivisions are of necessity drawn very finely. Almost arbitrary decisions have to be made that a technical man interested in one subject will not be interested in another. As a result, many a TAPPI member at Paper Week came near, like the proverbial chameleon, to bursting himself trying to be two or three colors at once.

Too, there was in some sessions a reticence in the discussions, sometimes even a total absence of discussion, which indicated one or all of three things: the pressure of time attendant upon a program of magnitude; a paper too broad and gen-

eral for specific discussion; or—just possibly—a natural reticence to "tip the mitt" right at the start of the highly competitive postwar period.

But, as always, nobody had any fault to find with the performance of TAPPI's staff, headed by R. G. Macdonald, or the industry men who give of time and effort to TAPPI ideals.

To print or abstract all the papers would not be a difficult task, but the reading would be a herculean one. Some of the most important have already appeared in PULP & PAPER INDUSTRY.

Great overall interest was shown in the coating session, whose designated chairman, Ruth Cobb of Lowe Paper Co., was absent due to illness; in the alkaline pulping sessions, chairmanned by K. G. Chesley, Crossett Paper Mills, and (with the de-inking session) by W. F. Gillespie, Gaylord Container Co., and Frederic Clark, consulting engineer; in the acid pulping sessions, presided over by George H. McGregor, Minnesota & Ontario Paper Co.; and in the by-products session, whose chairman was R. H. Stevens, National Container Corp.

However, there was many another high point. The large attendance at both the plastics session showed the greatly increased interest of the industry in resin-fiber combinations; and the symposium on wet strength papers was very well received and expertly led by K. W. Britt of Scott Paper Co. Don Jackson, Hammermill Paper Co., was chairman of these sessions. (A complete symposium on resin-paper combinations appeared in the Dec. 1945 and Jan. 1946 PULP & PAPER INDUSTRY.)

Engineering Papers

Among papers delivered before the engineering sessions, machine operators and engineers will want to study two in particular. These were F. A. Garrett's *Analysis and Study of Presses of a Newsprint High Speed Paper Machine* and *Heat Transfer Calculations in Machine Drying* by A. E. Montgomery, Ross Engineering Corporation.

Mr. Garrett, of the Canadian International Paper Corp., showed the importance of uniformly distributed nip pressure between the rolls, but recognized the frequent necessity for unsymmetrical loading in order to correct defective drier operation or defects of sheet formation on the wire. He showed examples of the determination of the correct formula for crown contour and curve to apply to the rolls in order to get a sheet of uniform moisture content.

The importance of the pressing operation on the economics of drying was emphasized and the need for an instrument that would give a continuous record of the wetness or dryness of the sheet was pointed out.

Heat Transfer Values

Mr. Montgomery took up each of the factors interfering with the transmission of heat and on assumed conditions calculated their value. He demonstrated how harmful is the effect of air in the cylinders and even more so the presence of scale on the outside surface of the driers. He also showed how little influence on drying there is in a difference of thickness of the cylinder wall and what can be expected from a change of metal from the custom-

NEW PREXY OUTLINES PLANS FOR TAPPI

The week following the convention, PULP & PAPER INDUSTRY caught the busy new president of TAPPI in the offices of Union Bag & Paper Corp., in New York's Woolworth Building, where G. W. E. Nicholson holds forth between periodic trips to the big Savannah mill. There he outlined a two-point general program for TAPPI in 1946:

1. A strengthening of the engineering division through its committees;
2. A regional meeting, probably in the Midwest, which will lean heavily toward engineering problems.

"As the retiring president, Vance Edwards, has indicated, we want to give more attention to the problems of plant and construction engineers in the industry, and I am heartily in accord," Mr. Nicholson said. He expressed himself as pleased with the interest and attendance at the 1946 annual, and felt that the huge attendance could not all be attributed to the fact that no national meeting had been held for two years.

ary cast-iron. Other factors influencing the drying rate are the tightness of the draws and the tension on the drier felts as affecting the intimacy of contact of the paper to the drier. The influence of drier ventilation on lowering the temperature of the sheet by increased evaporation rate thereby increased the temperature difference between it and the steam. This, said Mr. Montgomery, is most economically accomplished by the use of jets of warm air directed between the driers on the pockets, thereby breaking up the blanket of moist vapor.

With regard to this paper, W. G. McNaughton, Newsprint Service Bureau and winner of the 1946 TAPPI medal, who chairmanned this session told PULP & PAPER INDUSTRY: "Although drying has been discussed in a general way many times in the past, this is the first time the subject has been treated in such a clear presentation and on a mathematical basis."

Improvements in Evaporator Engineering by R. E. Bergstrom and J. R. Lientz, Swenson Evaporator Co., attracted attention with its relating of the improvements in design technique which have made possible the increase of steam economy from 1.3 to 5.5 pounds of evaporation per pound of steam required, with corresponding reductions of water and power demand. It pointed out that the use of proper tube proportioning has improved heat transfer conditions and that the use of longer tubes—up to 26 and 28 feet—is rapidly increasing.

Digester Circulating-Heating

Provoking a maximum of discussion was *Kraft Digester Circulating and Indirect Heating Systems* by J. M. Wilcox, Electric Steel Foundry Co., Portland, Ore. Considerable discussion developed here as to the best position for the strainer within the digester, and the consensus appeared to be that the strainer should be near the top, above the pulp line. As for polished tubing, discussion developed that no sulfite mills had reported improvement through its use. Considerable attention was given by Mr. Wilcox, as well as by those discussing his paper, to selection of circulating pumps of suitable capacity and operating characteristics. Future trends, it was related, are toward the employment of indirect cooking in conjunction with external circulation for reasons of economy, and toward use of alloys steels.

Mr. Wilcox's paper is to be published in our next issue.

It is based on his company's experience in connection with sulfate operations throughout the continent, Esco's contacts being broadened by representation in the East and South by Swenson Evaporator Co. Mr. Wilcox has traveled widely to these mills with Mr. Lientz and other Swenson engineers.

Supercalendering

The coating session was highlighted by *Supercalendering of Machine Coated Papers* by E. E. Thomas, Appleton Machine Co., who was

aided by a "model of a model" supercalendering machine. The major development in machine coating, Mr. Thomas pointed out, "is the increase in the number of installations." The supercalendering phase is all-important, he stated, because it reflects the end results of the combined papermaking and coating process.

Alkaline Pulp Session

Several in attendance said they thought a most valuable contribution to the industry had been made in the two papers by R. D. Cowherd, Bristol Co. They were *A New Method for Control of Sulfate Digesters*, and *Temperature Effects Associated with Specific Gravity Measurements*. Both were features of the alkaline pulping session. Another highlight of these sessions was *Potentiometric Determination of Sodium Sulphide in Sulfate Pulp Black Liquor* by T. A. Pascoe and P. B. Borlew of Nekoosa-Edwards Paper Co.

This latter paper is based partly on publications on behalf of the petroleum industry.

"The method in question is based on an argentimetric precipitation of inorganic monosulphide and mercaptans. The endpoint is determined potentiometrically. The titration medium is a 1.0 normal Na OH solution. The high sodium glass electrode is successfully employed if the concentration of S--ions in the half cell is 0.01 normal or greater. A silver sulphide coated silver electrode serves as an indicator. The data were compared with those obtained by the carbon dioxide evolution method. Both methods agree within 1%.

"Black liquor samples can be stored over extended periods of time without decomposition if air is excluded and the temperature is kept a few degrees above freezing. In contradistinction to hitherto used absorption, separation, or evolution methods, the described potentiometric method permits a rapid and direct determination of the Na₂S content in sulphate black liquor without interference from other substances us-

PICTURES AT PAPER WEEK (taken by our cameraman (left to right):

JOSEPH E. HOLVECK, Hydraulic Engineer, Worthington Pump & Machinery Corp., designer of ring-type hydraulic log barker which he described at TAPPI session; W. F. GILLESPIE, Tech. Director, Gaylord Container Corp., Co-Chairman of Alkaline Pulping and Paper De-Inking Session; E. G. KOMINEK and J. M. KAHN, Infilco, Inc., who discussed green liquor clarification; WARREN BULLOCK, who handled publicity arrangements at the Waldorf for APPA, and R. H. SAVAGE, Mead Corp., who discussed role of physicists in the industry.





CANDID SHOTS BY PULP & PAPER INDUSTRY cameraman at the New York meetings (left to right): ROY B. JOHNS, Assistant Vice President, Freeport Sulphur Co., New York, with MYRON W. BLACK, Assistant Manager, Inland Empire Paper Co., Spokane, Wash., and EDWARD T. WOOD, Assistant Manager, Hollingsworth & Whitney Co., Mobile, Ala.; JACK WILCOX, Electric Steel Foundry Co., and J. R. LIENTZ, Swenson Evaporator Co., both of whom gave papers, and whose companies in Portland, Ore., and Harvey, Ill., respectively, have continent-wide cooperative agreement; and R. G. MACDONALD, Secretary of National TAPPI.

ually present. This makes it possible to trace the consumption of Na_2S in kraft pulp manufacturing. It opens new approaches to a nonspeculative theory of kraft cooking and to a rational utilization of salt cake. Coupled with a mercaptan determination, the method can be used in digester sewer effluent analysis and offers a tool to control river pollution and its toxicity for fishlife."

Use of Douglas Fir

A paper to which many had looked forward was mentioned by title only—*Production of Bleachable Sulfate Pulps from Rapid-Growth Douglas Fir* by J. Stanley Martin, U. S. Forest Products Laboratory, Appleton, Wis. This was of importance because Pacific Coast mills are planning a tremendous increase in use of Douglas fir—it is their "key" to sustained yield operations (See paper on Page 64).

The laboratory has been producing unbleached sulfate pulps of medium bleach requirement and good strength qualities by treating rapid-growth fir cooking liquors of 33.9 and 50.6% sulphidity. Bleachable pulps have thus been obtained by the use of the same time and temperature conditions of pulping normally employed for the production of ordinary kraft pulps. Multi-stage bleach experiments, involving various chlorine partitions, gave

CHEERS FOR UNCLE SAM HELPERS

About 30 former members of the pulp and paper agencies of WPB stood up to applause and honor at the 1946 luncheon of AP&PA at the Waldorf-Astoria on Feb. 27. Their names were read out by retiring president D. K. Brown, and they received certificates to commemorate their war service.

Among the group were these former chiefs of the pulp and paper (later just paper) division: D. C. Everest of Marathon, Claude Wakeman of Kimberly-Clark, Rex Hovey of Oxford, Walter Wilcox of S. D. Warren, and Grant Richardson of Hammermill.

There was a big cheer for Allan Hyer, of Black-Clawson, who handled the delicate task of equipment distribution, and some of the others called on were Jim Madden, of Hollingsworth & Whitney, and Curt Hutchins, of the Dead River Pulpwood Co., who led important pulpwood campaigns.

bleached pulps high in whiteness, but variable as to strength, according to Mr. Martin's study. Higher sulfidity pulp appeared to bleach slightly easier than low sulfidity, although bleaching conditions were not exactly the same. At each sulfidity, however, a bleached pulp was obtained that had good color, fairly high alpha-cellulose content, low ash content, and high strength values. Also, bond papers with a high degree of whiteness and a good formation were made. On the favor-

able side, such qualities as porosity, opacity, and gloss were satisfactory. On the negative, considerable strength was lost in converting from pulp into paper.

Green Liquor Clarification

Also in the alkaline pulping session, J. M. Kahn and E. G. Kominek, Infilco, Inc., in their Clarification of Green Liquor, related how full scale tests at National Container Corp., Jacksonville, Florida, demonstrated that a dosage of 1.4 pounds of Epsom salts per ton of pulp would reduce iron concentration in the green liquor from 90 to 2 p.p.m., and the total R_2O_3 concentration from 500 to 265 p.p.m. The clarified green liquor afforded the anticipated improvement in causticizing operations, but the tests were not carried on for a sufficient time to demonstrate the increased purity of the reburned lime.

Hydraulic Barking

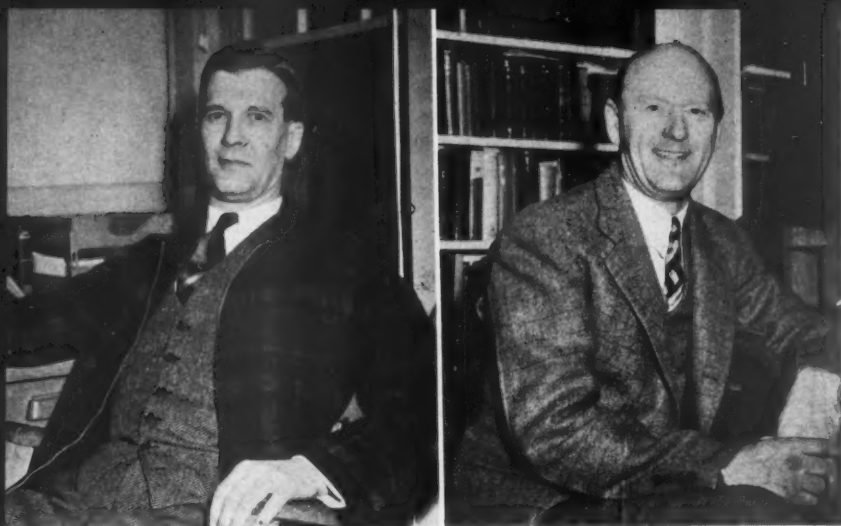
Probably the best attended sessions of TAPPI were the ones devoted to the hydraulic barking of small logs, prepared by R. K. Prince, Allis-Chalmers Manufacturing Co., and *The Ring Type Hydrobarker* by Joseph E. Holvek, Worthington Pump & Machinery Co. While the

(Continued on pages 48b, 49, 50 and 54)

MORE PICTURES AT NEW YORK MEETINGS (By PULP & PAPER INDUSTRY) left to right:

J. K. WEYERHAEUSER, President, Weyerhaeuser Sales company and Chairman of Finance Committee, American Forest Products Industries, Inc., talks with COLONEL W. B. GREELEY, new Chairman of Board Trustees of AFPI, Inc.; EUGENE G. INGALLS, Sulfite Pulp Mill Supt., Wasau Paper Mills Co., Brakaw, Wis., who discussed evaluation of sulfite pulps before TAPPI; WILLIAM WEBSTER, Supt., Brunswick Pulp & Paper Co., Brunswick, Ga., who formerly held similar post in Tacoma, Wash.; E. E. THOMAS, Appleton Machine Co., gave paper on supercalendering; JOHN N. FRANKLIN, Bowater's Newfoundland Pulp & Paper Mills, Ltd., Cornerbrook, Nfld.





N. W. "BILL" COSTER (left), photographed by PULP & PAPER INDUSTRY at his new desk in the Soundview Pulp Co., where he was promoted March 8 to General Superintendent. JOHN M. CARLSON (right) was promoted to Assistant General Superintendent.

Coster Becomes General Supt., Carlson, Assistant, at Soundview

Rarely have there been changes in the top operations management of Soundview Pulp Co., of Everett, Wash., in the twelve years of its history.

When it became necessary for a number of new appointments to be made in the past few weeks, Leo S. Burdon, vice president and general manager, pointed out they were made from the "ranks," being earned promotions of members of the mill's own staff.

Appointment of Nils William Coster, former technical director, as the new general superintendent of the world's largest sulfite mill was the most important of several announced by Mr. Burdon. The latter was himself honored by election to a vice presidency of the company and all its subsidiaries earlier this year.

Mr. Coster succeeded G. J. Armbruster, who retired on March 8, his 65th birthday, ending 50 years in a number of well known mills in the U. S. and Canada.

John Matthews Carlson was promoted to assistant general superintendent, succeeding S. A. Salmonson, who announced his resignation on Feb. 15 to take a rest.

The technical and research work which Mr. Coster headed has been divided into two departments. R. I. Thime, who returned a month ago after serving as commander in the U. S. Naval Reserve, is technical director in charge of control. Adolf Orup, who has been at the mill many years and came from Sweden, is in charge of research.

Stuart Macke, former assistant

power plant engineer, has been promoted to chief in that department, succeeding the late Charles A. Shively, who died after being stricken with a heart attack on an Everett street in early February. John M. Johnson has been promoted to Mr. Macke's former position.

Last month, it was reported that Charles Stehman had been promoted to master mechanic, succeeding John Moak, who resigned to become associated with new construction work at Crown Zellerbach's West Linn mill.

Coster-Carlson Careers

Mr. Coster is a native of the province of Skane in Southern Sweden and a graduate of Chalmers Institute of Technology in Gothenburg, Sweden, where he obtained a degree in chemical engineering. After working in Swedish mills, he moved to Canada in 1923, locating at the Spruce Falls newsprint mill in Kapuskasing. Later he was with National Analine Div. of Allied Chemical & Dye Corp., in Buffalo, N. Y., and with Marathon Corp. in Wisconsin, before moving west in 1925 to join the old Fidalgo Pulp Co., at Anacortes, Wash.

In 1930 he became technical director at the present Soundview mill, when it was a division of Puget Sound Pulp & Timber Co., and continued in that post until his recent promotion.

Mr. Coster was married while at Anacortes to Eva Wilson of Blaine, Wash., and they have two daughters. His hobby has been stock farm-

ing at his farm at Swan's Trail near Everett.

Mr. Carlson, the new assistant general superintendent, was likewise born in Sweden, in Dalsland, a middle province. He graduated in mechanical engineering from the Polytechnicum in Charlottenburg, a suburb of Berlin, Germany, and was there during the 1918 German Revolution.

He worked for a number of Swedish mills, including the Billerud Co.'s rayon pulp mill at Kyrkeby, Sweden. He was for three years on the staff of the Dvar sulfite mill in Bosnia, Yugoslavia. He came to North America in 1924, locating at the Port Alice, British Columbia, mill when it was owned by the Whelan company. Two years later went to the pulp and paper school of the University of Maine for a year of further study, and then returned west to join the Rayonier organization. He was at the mills at Hoquiam and Shelton, Wash., for three years.

Mr. Carlson became night superintendent at the present Soundview mill (then Puget Sound Pulp & Timber Co.) in 1930 and has been there since. His hobby is race horses and he has a farm on the Pilchuck River. He was married after moving to Everett to Mary Hall, of a pioneer Snohomish, Wash., family, and they have one son.

Mr. Armbruster said if traveling conditions improve he might see some of the country with Mrs. Armbruster, but meanwhile he is resting at his home. Born in Stuttgart, Germany, he came to this country at the age of nine in 1890 and his first pulp mill job was at Palmer Falls, N. Y. He rose to sergeant in military forces in the Spanish American War and returned to the paper industry at Nekoosa-Edwards Paper Co. He was married in Nekoosa, Wis.

He became a superintendent at Merriton, Ontario, in 1916 and held similar position at Edmonston and Atholville, New Brunswick, coming to the Everett mill in 1930 as general superintendent.

Mr. Salmonson, who has a small farm at Route 5, Box 1683, Everett, on Puget Sound, has been a superintendent since 1907. He held this position at Temiskaming, Ontario, now an I. P. mill, where his brothers, Victor and Martin, are now the superintendent and assistant superintendent, respectively. Sam Salmonson was sulfite superintendent at Merriton when Mr. Armbruster was there, and his first job in the west was at Port Alice. He was in charge of all sulfite operations of Crown Zellerbach Corp., from Lebanon, Ore., to Ocean Falls, B. C., later.

KIMBERLY-CLARK BUYS SITE FOR EXPANSION AT MEMPHIS

Kimberly-Clark Corp., of Neenah, Wis., leading manufacturer of creped wadding products such as facial and other tissue, has purchased one of the most extensive available manufacturing properties in the South.

It has bought from Uncle Sam the 88-acre site and buildings of the Fisher Aircraft Co. plant at Memphis, Tenn.

Although Kimberly-Clark has made no detailed announcement regarding its program at Memphis, the tremendous extent of this new acquisition indicates big plans for new Southern operations.

Memphis facilities will be in the creped wadding field, in which K-C has already indicated a program of spreading manufacturing facilities at key locations over the North American continent.

The company announced the plant will employ 1,400 in manufacture of Kleenex, Kotex, Delsey and Kotex sanitary belts.

K-C is already entering the sulfate pulp production field in Canada and there would be ample opportunity there to prepare for entry at some future date in the sulfate pulp field of the South, too. However, the new Canadian sulfate pulp mill, to be built near Schreiber, Ont., as well as older sulfite operations of Kimberly-Clark, could easily supply the needs of a creped wadding plant at Memphis.

Meanwhile, M. J. Schulenberg, assistant to Cola G. Parker, president of Kimberly-Clark, stated that the company will require 12 months to reconvert the Memphis buildings and install equipment, employing 700 at this work.

Description of Property

The government had invested \$7,000,000 in the Memphis aircraft plant site.

Of the 28 large and small buildings available on the Memphis site, one main building comprises an area of about 600,000 square feet and is of brick and steel construction.

Three spur tracks and overhead cranes are included in the purchase. City water is supplied and there is one deep well on the property. There are both city power and factory power plants available.

An illustrated article in the Dec. 1945 issue of *PULP & PAPER INDUSTRY* described the new modern windowless creped wadding plant of at least

30-ton capacity, built by Kimberly-Clark at Kapuskasing, Ontario, which would presumably be a "model" for the Memphis plant.

Two other comparatively new creped wadding machines were installed before the war at the Badger-Globe mill in Wisconsin and similar operations are in other K-C plants. Beloit Iron Works constructs these machines according to special design of K-C engineers.

The company has had great success in utilization of Canadian black spruce which has a small diameter fiber and it is a safe assumption that for some time to come wood of this

species will be the source of principal supply for Kimberly-Clark tissue manufacture, no matter where it takes place. At any rate, the black spruce will be a source of wood for the new projected bleached sulfate mill of the recently organized subsidiary, the LongLac Pulp & Paper Co., which will be built on Lake Superior near Schreiber, Ont.

The capacity of this sulfate mill has not been announced but, in line with other Ontario developments, could possibly range from 200-300 tons daily. For details see p. 48, Feb., and p. 11, Jan. 1946 issues of *PULP & PAPER INDUSTRY*.

Obstacles to Robert Gair Mill in Savannah Removed

Change in the title of the Robert Gair, Inc. (New York), new \$12,000,000 southern paperboard mill subsidiary has been effected and obstacles hindering its location at Savannah, Ga., erased. The company has until April 1 to complete its financing and give final effectuation to contracts covering construction that must begin prior to Dec. 31, 1946.

When contacted by *PULP & PAPER INDUSTRY*, the New York office of the company said it probably would make an official announcement in late March.

The project was originally announced in early summer of 1945 by the Santee-Cooper Hydro-Electric project authority, and at time was billed for construction at Santee Village, on Lake Marion, near Orangeburg, S. C. The Gair-Santee Corp. took its South Carolina charter and title from the location.

In mid-February, the title of the subsidiary was changed to the "Southern Paperboard Corporation" under a Delaware charter (recorded in Georgia) and its location at Port Wentworth, Savannah, Ga., had become contingent upon the City of Savannah completing financial arrangements for an industrial and domestic water supply that would serve the mill.

The Savannah water supply was drawn originally from deep artesian wells. However with the establishment there of a number of large industries requiring large quantities of water, a restriction on new drilling was set up lest the water sands be

depleted to an extent permitting the intrusion of salt water, which would adversely affect city and industries alike. To meet the need for more water, the municipal authorities had planned to draw a water supply from upstream on the Savannah River. The issuance of \$1,000,000 in bonds to start the financing of the project was provided.

Original plans for the city's water project set the goal at 50 million gallons daily and on Feb. 3 the Gair representatives signed a contract with Mayor Peter R. Nugent, of Savannah, for an initial 10 million gallons.

After the completion of the original mill, Gair would add another large container board machine and bleaching unit which will require 15 million gallons of water daily.

The city's problem was to obtain binding commitments from underwriters for the purchase of \$4,500,000 in 30-year revenue anticipation certificates at a rate of interest not to exceed 2 1/4% and payable beginning with the sixth year. Average payments of principal and interest after the sixth year will be \$233,500. Gair will pay \$100,000 into a special reserve fund which will be available for use to pay principal and interest on the certificates should the water plant revenues at any time be insufficient. After the 21st year, Gair will get credit for this.

J. E. Sirrine & Company, Greenville, N. C., engineering firm that has the supervisory contract for the paperboard plant also has the contract for Savannah's water plant.

New and Improved Paper Machines For Camas and West Linn Mills

The two biggest mills of Crown Zellerbach Corp.—at Camas, Wash., and West Linn, Ore.—are not only going to have three new paper machines, as previously announced but six other machines at those plants are being rebuilt, speeded up or improved in various ways.

Authorized projects at the two mills will enable them to increase their total paper production capacity by at least 200 tons daily over their present combined rated capacity of 800 tons. If the big magazine customers of West Linn—Time, Inc., and Curtis Publishing Co.—return to the heavier weight paper they used before the war, the increased capacity would be about 225 tons.

Two years ago J. D. Zellerbach, president, announced that the company's postwar program was aimed toward production of higher quality and less competitive grades of paper. This program is being realized to a great extent in work being done on paper machines and the plans for bleach plants at Camas and West Linn.

Albert Bankus, vice president in charge of manufacturing, this month outlined to PULP & PAPER INDUSTRY some of the interesting features of this equipment. In doing so, he stressed the program offers more opportunities for advancement to employees and will call for greater skills from an enlarged number of them.

It had been previously announced that Camas would have two new machines—one an all-purpose specialty machine and one for facial tissue—and that West Linn would have one new and one rebuilt machine for coated book paper. In addition, two older machines at Camas for tissue and opaque waxing papers are being rebuilt. Also, two West Linn Machines on A2 printing, telephone directory and wrapping papers are being improved and speeded up; likewise, another West Linn machine for toweling.

Description of Unusual Machine

Technicians and papermakers everywhere will be especially interested in the new all-purpose No. 15 machine being built for Camas by Beloit Iron Works, Beloit, Wis. For the first time, some of the actual details of this machine may now be disclosed. Mr. Bankus said it would have most modern equipment throughout, will operate on a wide



ALBERT BANKUS, Vice President in Charge of Manufacturing, Crown Zellerbach Corp.—"Improvements offer opportunities for advancement among an enlarged number of employees."

range of basis weights, with facility on either sulfite or kraft grades—both of which are made at Camas—and with new precision controls making it possible to operate at speeds varying from 250 to 1500 feet per minute. It will have a 152-inch wire width, with a wire length of 110 feet.

An unusual feature of this machine will be two suction couches, with a primary suction couch located just after the suction boxes at the position often occupied by the guide roll. Only one other machine, it is said, now has this feature and it is in a big Southeastern board mill.

The new No. 15 at Camas will have two rubber-covered suction presses and 44 paper driers, divided into three sections. Between the first and third will be a size press. The machine will have two open-side calender stacks, the first of this type on the Pacific Coast, made by Beloit Iron Works. Bearings throughout on the paper machine will be anti-friction. Driers will be driven by enclosed gears.

Production will vary over a wide range, from 75 to 125 tons or more per day, depending on quality and type desired.

No. 14, the new facial tissue machine at Camas, will have a wet end speed of 1500 feet per minute. It is being made by Beloit.

Work on 5 West Linn Machines

No. 5 and No. 6 machines at West Linn, the two which will make coated paper for Time, Inc., and Curtis Publishing Co., using patents of Consolidated Water Power & Paper Co., are also being made by Beloit.

They will have a combined output of about 200 tons daily, providing the magazines return to heavyweight paper and, if they should not, output would be only about 25 tons less. No. 6 (150-inch trim) is an entirely new machine, as has been previously stated, and No. 5 (140-inch trim) is a rebuilt job, formerly being on newsprint.

No. 1 and No. 2 machines at West Linn—84-inch and 104-inch, respectively—are being equipped with new Hypoid drives by Black-Clawson Co. of Hamilton, Ohio. They also are being supplied with second suction presses, additional driers and other improvements by Beloit. They will be able to produce A2 printing and phone directory at 800 feet per minute. This A2 printing paper is the stock on which Time is now printing its western circulation at Los Angeles.

Beloit also is improving the No. 4 machine at West Linn. This is a 150-inch machine on toweling. It will have additional driers and a Westinghouse steam turbine will replace the present reciprocating engine drive. It is expected to have an improved product as well as greater speed.

Cameron Machine Co., Brooklyn, N. Y., is providing winders for the new and rebuilt machines. Where super-calender stacks are used in connection with No. 5 and No. 6, they are to be fitted with rolls from Appleton Machine Co.

A seven-stage sulfate bleach plant, of 150 tons capacity, one of the most complete and modern in the industry, will be equipped at Camas by Improved Paper Machinery Co., and it also will provide a smaller 75-ton sulfite bleach plant at West Linn. As previously announced, when that mill changes over to the soda pulp process—as is planned—this will be increased to a 250-ton bleach plant. Northwest Filter Co., is designing a new filter plant.

A lunchroom, locker and dressing rooms for employees at West Linn, all in one modern tile-walled building that would be a credit to any country club, is almost ready for oc-

cupancy. One end will be for men, the other for women.

C. C. Moore & Co. will install a new 200-ton B & W Tomlinson recovery furnace and boiler with Cottrell Precipitator at Camas. C. C. Moore & Co. will also install new oil-fired steam boilers at West Linn and Camas. These boilers will make 170,000 pounds of steam per hour each.

All in all, the Camas and West Linn improvements are among the most noteworthy ever to be made on the Pacific Coast in this industry.

ROBERT W. RILEY (left), former Coating Supt. at Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., who became Coating Supt. at the West Linn Division of Crown Zellerbach Corp., on Dec. 1.

GARRETT W. BEAL (right) became Assistant Master Mechanic at West Linn on March 1. His previous experience included 14 years at the Crown Z mill in Carthage, N. Y., and ten years at the company's Port Angeles, Wash., mill.

Mr. Riley joined the West Linn staff in connection with the program on on-the-machine coated book paper, under patent license from the Consolidated Water Power & Paper Co. He was nine years at Wisconsin Rapids and 10 years before that was Asst. Coating Supt. at Mead Corp., Chillicothe, O. He is a graduate chemist from Ohio University.



PORT TOWNSEND WILL HAVE FOUR TYPES OF WOOD BARKERS

Four different types of wood barkers may be put into use at the Port Townsend, Wash., kraft mill of Crown Zellerbach Corp., in order to effect the most complete possible utilization of that mill's timber resources.

The program calls for use of wood as small as six inches in diameter—until recently an almost unheard-of practice in the Far West—as well as slabs, odds and ends and the usual, but now less abundant, big timber.

The entire program—including the plan for four barkers—was discussed and agreed upon at a meeting at the Port Townsend mill on Feb. 19 in which J. D. Zellerbach, president; Albert Bankus and Don Denman, vice president, and E. W. Erickson, resident manager, participated. It is a flexible program, subject to any changes that future developments may warrant, but under present plans it calls for:

1. The present lathe-type hydraulic barker for logs from 20 to 52 inches in diameter and 12 to 21½ ft. long. This barker developed by Harry E. Bukowsky, plant engineer, has been in operation for more than two years and was illustrated and described in detail in the Feb. 1944 PULP & PAPER INDUSTRY.

2. A ring-type of hydraulic barker for round wood up to 20 inches in diameter (probably as small as 6 inches) and up to about 22 ft. length (limited by width of transfers). This type of barker has been developed by Frank Swift, Crown Zellerbach Corp. engineer, who first tested an experimental model at Cathlamet, Wash., and more recently at the Camas, Wash., mill.

3. A small hydraulic slab barker which has been in experimental operation at Port Townsend for several



JOHN H. MOAK, Resident Engineer on Construction for Central Engineering office of Crown Zellerbach Corp., has been stationed since Feb. 12 at the West Linn, Ore., mill. Mr. Moak, known in the Northwest because of his six years with Soundview Pulp Co., Everett, Wash., as Master Mechanic, was before that with Brunswick Pulp & Paper Co., Brunswick, Ga.

months. Slabs are run through end to end, flat sides down, on rolls, similar to the other slab barkers developed at Everett and Bellingham mills, but at Port Townsend a single swinging overhead nozzle, instead of three fixed nozzles, cleans the bark from the slab.

4. A Stetson-Ross mechanical barker for "cats and dogs"—misshapen or odd-shaped logs and odds and ends which cannot be easily barked on the hydraulic machines.

The lathe-type log barker now operates on day shift and the small slab barker on night shift, each utilizing water pressure of 650 lbs. per

square inch. Each is served, alternately, by a Worthington high pressure, 5-stage, 1,750-rpm pump with 300-hp. General Electric motor.

In the lathe-type barker, which cleans about 100 logs an hour, the log is lifted by loading arms and automatically centered between a tail stock and driving head, which then revolve it, while the nozzle, suspended from an overhead carriage, travels along the log lengthwise.

Mr. Swift has developed another type of hydraulic barker in which the logs pass butt to butt, through a ring. A revolving section of the ring has nozzles, opposite each other, and facing inward, which clean the log. The main problem in this barker was transferring water to the revolving section from a fixed feed head and holding it in the packing. This, of course, is more successful in a smaller ring than in a large one, and therefore, the equipment is more easily applicable to the barking of small logs, rather than large ones. For this reason, it is planned for use at Port Townsend on round wood up to 20 inches diameter.

Some executives and engineers who have given a great deal of time and thought to development of hydraulic barking in the Far West, where it is making possible from 15 to 20% more complete use of the wood, are convinced that eventually hydraulic barking of slabs may no longer be necessary. Their thought is that sawmills will put in log hydraulic barkers and thus take the bark off before slabs are cut. Comparatively an expensive operation, hydraulic barking of slabs is being done in three western mills because of augmenting wood supply by use of this material and it is the most economic method of doing so.



Pacific Mills Expansion Will Boost Pulp Output

Pacific Mills, Ltd., will spend more than \$500,000 this year on plant expansion at Ocean Falls, B. C., designed to eliminate waste, improve working conditions and improve the quality of the company's products. Production of kraft, sulfite and groundwood pulp will be increased.

Announcement of the program, to be completed during the coming summer, was made by President Paul E. Cooper at Vancouver a few weeks after he gave out details of a townsite development and construction program to cost more than \$1,100,000.

Company engineers are reported to be surveying the possibilities of increasing the company's water and power supply.

The Ocean Falls kraft mill is to be completely modernized by installation of a Dorr continuous causticizing system at a cost of nearly \$140,000. This installation is expected to improve working conditions in the kraft mill as well as effect important chemical savings. Another result will be increasing the volume of kraft

production from 140 tons to 175 tons daily.

The company's present causticizing plant consists of a batch system and a number of the tanks are in need of replacement.

Because the company's requirements for bleached and unbleached sulfite demand increased production in the sulfite mill, new equipment will be installed there at a cost of nearly \$160,000. This is expected to increase output of sulfite pulp from 65 tons to 100 tons daily.

The increase will be attained through installation of a hot acid direct cooking accumulator system. At present the company operates with two digesters, the third digester being used as an accumulator with an average daily production of some 65 tons.

Sulfite Bleach Plant

A zinc hydro sulfite bleaching system is to be installed for the groundwood mill at a cost of nearly \$200,000. This will turn out 240 tons of pulp daily, sufficient to produce

Pacific Mills' chemical plant and adjacent buildings. The penstocks in foreground lead to power house.

280 tons of newsprint at 7% moisture content, containing 88% groundwood, in addition to ten tons per day for specialty grades of paper. The system is somewhat similar to that installed at Crown Zellerbach plants at Port Angeles and West Linn. At this time no change is contemplated in the method of manufacturing the solution through the use of zinc dust and sulphur dioxide obtained in liquid form.

Another departure will be in the utilization of rejects from the groundwood mill, previously regarded as so much waste. The rejects will be refined and placed in the pulp stock. Five tons of these rejects will be treated daily.

Cost of this phase of the program will be about \$28,000, according to the estimate. To carry out this project a Bauer refiner will be installed, and it is expected that the operation will help increase groundwood production at a time when demand substantially exceeds supply.

The equipment being put in to handle the rejects will be sufficient to accommodate all bull screen and knoter rejects through installation of a shredder for pre-treatment ahead of refining.

Description of Equipment

In connection with the installation of groundwood zinc hydro-sulfite bleaching system, which will give higher brightness to the finished newsprint sheet, two 8'x16' double port Oliver washers will handle 260 tons of groundwood wood pulp daily. All parts coming into contact with stock are rubber covered or made of stainless steel. The bull screens are being reconstructed of stainless steel and all pumps handling unwashed stock are made from acid resisting bronze.

Similarly, all pipe lines are of wood stave pipe with rubber lined valves and fittings. An arrangement of chests has been devised to give a longer reaction time than usual and also for the minimizing of stock channeling without having to resort to positive agitation. Dispersion of the zinc hydrosulfite solution in the stock is accomplished by its addition at the suction side of a pump and the amount added is positively determined through the use of proportioning pumps.

The piping is arranged so as to permit the use of paper mill white water, clear or cloudy effluents as temperature conditions dictate. Use

is being made of many controls so that the system can operate as automatically as possible. A central control panel will also permit operation with the minimum amount of work for the operators.

The Bauer refiner for recovery of groundwood fine screen rejects will be driven by two 150 h.p. 1,200 R.P. M. motors and the stock is thickened to about 8% consistency by means of a Drainer-Conveyor just before the refiner. In order to insure a uniform feed a wood stove tank is provided to smooth out any irregularities in flow and a pump delivers the rejects from the tank to a constant overflow box. Wood stove pipe, lithocoted fittings and valves and bronze pumps are being used throughout.

The refined stock passes through the screen system and will be included in standard newsprint stock.

Dorr Equipment

The new, modern Dorr continuous system which is to replace the existing batch causticizing installation in the kraft recovery plant will be housed in existing buildings. The chief equipment consists of a slaker-classifier, three causticizing tanks with turbo-mixer agitators, white mud washer, green and white liquor clarifiers. The green liquor is heated directly through a stainless steel heater and the lime feed to the slaker is controlled and weighed automatically by means of a Merrick Feed-o-Weight. Controls and instrumentation are of Foxboro manufacture.

Lime burning is not going to be carried out at the present time due to the use of a high proportion of the sludge in the sulfite acid plant barker tower.

In the acid plant a Leeds and Northrup continuous SO₂ recorder is being installed as well as an acid filter for removing sludge, and stainless steel acid pumps.

Work around the digester house comprises the installation of a large acid recovery tank, and rehabilitation of the digester heating and circulating system.

In the screen room two Jonsson knotters are being installed, more fine screen capacity being added and two modern wood vat Sherbrooke deckers. This equipment will allow an increase in pulping capacity and at the same time makes a higher quality product.

Townsite development at Ocean Falls includes construction of British Columbia's fourth largest hotel, a moving picture theatre, a girls' dormitory and 15 six-roomed duplex houses.

Bellingham Tissue Mill Will Improve Quality



J. J. HERB (above), President, and his son, E. J. HERB, Vice Pres. and Gen. Mgr., Pacific Coast Paper Mills of Washington.

Pacific Coast Paper Mills of Washington, Inc., of Bellingham, Wash., will increase both the quality and quantity of its tissue products under an expansion program which gets under way this month.

Production of the company will be increased by about 40% and it will be enabled, for the first time in its history, to enter the rapidly-expanding dry creped tissue field.

The company will be fully equipped by next fall to go into this field. It will be the third mill on the Pacific Coast to be thus equipped.

Perhaps, the expansion program at the Bellingham mill will not seem large compared to some others announced in various regions of the continent, but in view of the location of this mill and its relation to the Far Western market, its plans assume relatively great importance.

This month the program was outlined in detail to PULP & PAPER INDUSTRY by J. J. Herb, the president, and his son, E. J. (Bill) Herb, vice president and general manager. The elder Herb's career — like that of some other leaders in the industry in the South and Far West — began at the Thilmany Pulp & Paper Co. in Wisconsin (in his case, way back in the 1880's).

The Bellingham mill is replacing the cylinder wet end on No. 2 machine with a fourdrinier and installing a Yankee dryer and making other alterations on press parts. The quality of the company's products will be enhanced and production will be increased from 21 to 30 tons per day.

Piling is being driven this month for an extension of the plant to accommodate the new equipment. This will be a two-story, 72-foot long addition. Installation of the machine probably will be made in October, if all goes well.

Description of Equipment

Black Clawson Co., Hamilton, O., is making the Fourdrinier end of the new machine and Beloit Iron Works, Beloit, Wis., is supplying a high pressure Yankee drier and stands. Valley Iron Works, Appleton, Wis., is supplying the flow box and slice. Retained from the old No. 2 cylinder machine will be some of the felt rolls, the suction press, calender stack and reel and part of the electrical equipment and motors.

Another Shartle-Dilts Hydrapulper will be installed at the mill. The Bellingham mill was the first tissue mill in the country and the first mill of any kind in the Far West to install a Hydrapulper. Its pre-war machine is 10 feet in diameter and the new one will be 12 feet. A Miami jordan, Bird save-all and other miscellaneous equipment will be installed in the paper mill.

In the converting plant, expansion plans call for a napkin folder and toilet rewriter from Paper Converting Co., Green Bay, Wis., and two labeling or wrapping machines from C. A. Lawton Co., De Pierre, Wis.

Paper Industry Could Use 2,000,000 Tons Of Bagasse Pulp, Survey Indicates

Dollar-and-cent report on costs are detailed by Dr. Litkenhous of Vanderbilt University. Plant requirements are given. Research is continuing at Louisiana State University.

Establishment of a practical commercial process for the utilization of bagasse as a source of pulp for paper is listed as the first objective of research work being undertaken by the chemical engineering department of Louisiana State University, Baton Rouge, La., following appropriation of an initial \$50,000 for cellulose research work by the university's trustees. The work will be carried on under the direction of Dr. Paul N. Horton, dean of the department.

Bagasse is the sugar cane stalk residue left after extraction of the juice for sugar making. Higher American labor costs and a winter freeze ceiling on Louisiana production as compared with Cuban sugar

sources produces an economic situation in which the possibility of recovery value for the stalk becomes vital in an area exceeding an entire Congressional district. Those interested in Louisiana sugar economics have had their interest edged by the use of part of the bagasse crop in the production of Celotex, an insulating and acoustical property wall board.

While the initial appropriation appears to be small in measurement against pulp mill factors, it is understood that ample supplemental funds are available. Also, the chemical engineering department already has a million-dollar experimental plant with 4-story head-room equip-

ment, shown in pictures accompanying this article, taken by PULP & PAPER INDUSTRY.

Work With Hardwoods, Too

Of even far greater interest to pulp and paper companies is the wide authorization for research work in cellulose in the low cost source field, which means work in hardwoods in a state which because of its extensive lowlands has a vital interest in developing a market for presently unwanted trees.

The action of LSU's trustees is based at least in part in the interest of the Louisiana Department of Commerce and Industry (of which W. Harry Johnson is executive director) in a study of bagasse as a possible source of paper pulp conducted for the U. S. War Production Board by Dr. E. E. Litkenhous, head of the chemical engineering department of Vanderbilt University.

Dr. Litkenhous' report, carried out as WPB Project No. 547, found that the best way to relieve the war paper shortage was better collection of waste paper. The second conclusion was that standard pulp and chemical engineering equipment not in emergency use could be used for converting bagasse for blending into other papers.

Bagasse, which is available in Louisiana to the extent of 770,000 tons per year, could have been utilized to advantage in extending the pulp needed in the war effort, according to Dr. Litkenhous. In fact, it was suggested that 2,140,000 tons of bagasse pulp could be consumed in the paper industry for various types of specialty papers and corrugating boards based on 1942 ton-nages. This would have relieved a similar quantity of kraft and sulfite pulps.

The post-war utilization of plastics in laminated and pressed forms will open additional outlets for cellulose sheets such as formed by the proper handling of bagasse, says the report. The new outlet, plus the continually increasing demand for more pulp products, should not affect the wood pulp picture. In fact, it is highly probable that other fibers such as ramie, bamboo and

VIEWS AT AUDUBON SUGAR FACTORY, Louisiana State Univ., Baton Rouge, La. (by PULP & PAPER INDUSTRY). Here experimental work is being done in cane milling and in baling of bagasse.

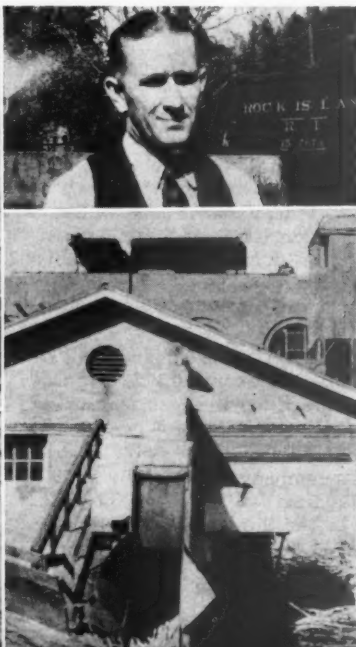
Upper left is general view of factory.

Upper right: ARTHUR G. KELLAR, Associate-Professor of Chem. Engineering, LSU, who is in charge.

Lower left: Stack of cane on feeding table outside the factory.

Lower right: Here conveyor line leads to opening and knives inside this opening cut up cane en route to 25-ton-an-hour \$75,000 milling machine, which has electrical controls more precise and of wider range than in commercial plants. Bagasse, after extraction, is mechanically packaged in 250 lb. bales, such as would possibly be available for paper mills. This equipment was developed by Celotex Corp.

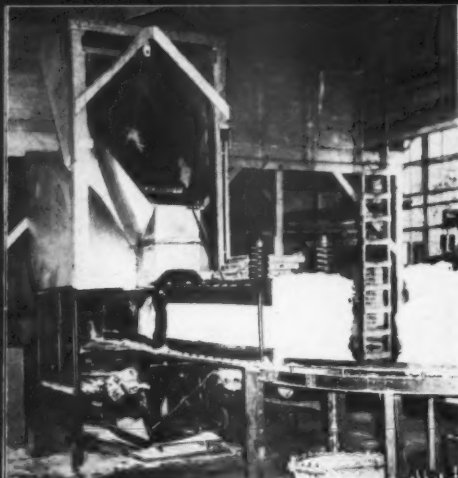
In this factory, experimental work is also being done with American Cyanamid & Chem. Corp. equipment to remove mineral matter from cane juices in an effort to produce better sugar. It might be described as a percolator plant, making use of American Cyanamid resins and processes.





BLEACHED SULPHITE PULP manufactured by the
Pulp Division, Weyerhaeuser Timber Company
is a quality product made of West Coast pulp-
wood harvested from Weyerhaeuser timberlands.

W E Y E R H A E U S E R



Closely associated with Louisiana's sugar industry is the Experimental Station of L.S.U.'s Chemical Engineering Department, at Baton Rouge, La., now valued at \$1,000,000. Equipment in these buildings serve sugar, paper and chemical industries alike. Here is shown a press developed for baling bagasse for shipping, storage and handling in connection with production of Celotex and other uses. The miniature bales of bagasse shown in this picture will be used in experimental work such as paper production research.

hemp will find service in supplementing the national pulp supply.

Some Cost Figures

Dr. Litkenhous' search indicated:

First, that all the early work and all the early patents recognized the advantages to be gained by using bagasse as a source of paper and/or alpha cellulose.

Second, that bagasse, an entirely different material from wood, was handled similarly to wood and that the drastic chemical treatment which would completely remove the pitch would affect the fibers of the ba-

gasse, thereby making the products unsuitable for processing or too expensive to produce. In none of these cases was bagasse handled according to the physical properties which it presented.

Third, that in any installation where bagasse was cheaply handled to separate pith and fiber (Godchaux process or Celotex process) the utilization of bagasse has been economically feasible.

Fourth, that specialty papers, fine papers, liners, corrugating paper and boards can be produced to use approximately 55% of the bagasse (dry basis) leaving the remaining lignin, etc., for plastic and other development. This method uses bagasse according to its peculiar properties and makes a cheap separation.

Fifth, cost figures indicate that bagasse can be obtained at a 100-

ton-per-day pulping mill for \$4.75 to \$5.67 per ton of dry fiber and can be made into pulp ready for paper or board manufacture for from \$16.65 to \$18.15 per ton of pulp as compared with Southern slush kraft pulp at \$21.19, Pacific Coast groundwood at \$16.78, and cheap sulfite pulp at \$36.00 (according to Dr. Litkenhous' figures).

In general, a process using the following separations appears economically feasible:

1. Attrition (mechanical) shredding of bagasse (either wet or dry).

2. Hot water or air separation of soluble materials and pith using screens, cyclones, centrifuging or decantation methods.

3. Subsequent semi-chemical, chemical, and/or physical treatment to handle the separate fractions according to their individual properties.

4. Using directly or blending with other pulps in standard paper making equipment.

The Celotex and Godchaux processes approach this suggested treatment, while the Horn, Wittemore and Wells processes can all, with but slight modifications, be made to conform. All three, using standard chemical engineering operation equipment will produce logical and economical pulp. The Horn process has been carried out only on the laboratory scale, the Wittemore and Wells processes on pilot to semi-commercial scales.

The cost per dry ton of processed bagasse fiber at the forming machine going into Celotex board (including the approximate 35% loss of pith, fermentation, mechanical, etc.) was estimated between \$10.00 and \$11.00). This is mostly mechanical treatment with a slight soda cook. The Wells process, upon which cost estimates were developed, indicates that with 45% loss in production, the overall cost of producing pulps at the machine will vary between \$16.00 and \$18.00 per ton. If the pith-and-short fibered fraction is reduced to \$10.00 per ton, the cost of the long-and-fine fibered material approximately will vary between \$22.00 and \$26.00 per ton compared to a ceiling price of approximately \$70.00 per ton. These costs would be feasible in normal times when pressed by cheap wood pulp. The 45% loss presents the possibility of a good recovery in plastic and other by-products.

The fine-and-long fibered pulp can be shipped in wet laps or dried sheets to mills any distance from the point of origin and there blender into a wide range of paper and paper board products. It could be

LOUISIANA CANE FIELDS TWICE FACED GRAVE THREATS OF EXTINCTION

In view of present use of Louisiana cane in the manufacture of Celotex board and experiments that may lead to its use in higher grades of pulp and paper, it is interesting to recall that the many miles of cane fields in that state were twice threatened with extinction.

"In this century, Louisiana's sugar swung still closer to extinction (than in the last) and this time there seemed to be no hope, for the land apparently had lost the ability to produce," wrote T. E. Dabney in "100 Great Years."

He recalled that in 1926, production sank to 42,000 long tons. That year the yield of the entire sugar belt was worth only \$5,000,000, the value of the strawberry crop in one or two Louisiana Parishes. The cane harvested just about equaled the seed planted.

The falling sickness Dr. E. W. Brandes of the United States Department of Agriculture in 1919 diagnosed as mosaic disease, which had already swept through the cane fields of Puerto Rico, and Argentina. The only cure, he said, was to plant new varieties, disease-resistant, as those countries had done.

"But the Louisiana planters paid no heed," wrote Mr. Dabney. "They were no longer the careful farmers they had been when their principal concentration was upon the growing of cane, and sugar-making was a routine chore with equipment which cost a few thousand dollars; now the involved and costly manufacturing process consumed most of their attention. They did not have time to read farm bulletins. Too cold, too hot, too wet, too dry, land worked out, they said, and there was nothing they could do about it. Anyway, there was no new cane they could get, for the United States prohibited the importation of seed for general planting purposes.

"On Southdown Plantation near Houma, however, there were three men who read what Dr. Brandes had written, and pondered. They were David Pipes, Charles Krumbhaar, and Elliot Jones, who divided the financial, manufacturing, and production management of the plantation. From Dr. Brandes, they secured, in 1922, twenty-one eyes (seed) of a cane new to this country but proved mosaic-proof in Argentina.

"This was P.O.J. 234—the 234th seedling evolved in the cross-pollenization experiments in Proefstation Oest Java; but scoffing planters in Louisiana said the letters meant Poor Old Jones.

"The Southdowners planted that tiny row of P.O.J. Strong and green grew the stalks—no sign of mosaic, though they were surrounded by fields pale and droopy with the disease. They planted the entire yield. Next year, they did the same, and the next, and they kept this up until by 1927 they had enough new cane for their seven thousand acres, and to give the rest of the cane belt a start."

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used to extend kraft pulp where the pulp shortage is very acute.

Bagasse pulp can be used as an extender of kraft pulp in quantities up to 40% of the weight of the kraft pulp.

Economic Operation

If a plant is installed at the ideal Louisiana site for such a plant, 100 tons per day of long-and-fine fibered lapped pulp having excellent characteristics for specialty papers such as tissue paper, etc., would be produced. If only this pulp is produced the loss would be too great to maintain economic operation in normal times. However, if the 120 tons of short-and-non fibered pith pulp is made at the same time and this pulp blended with 70 tons of waste paper board boxes, etc., approximately 190 tons of corrugating nine point paper board or laminating material for plastics can be produced to relieve 190 tons of kraft pulp for other war industry. This nine point is stronger in compression or corrugating paper and is superior to kraft or straw for this purpose. This pith fraction (if wet) must be processed at the separation site as it forms a cake which is not easily broken up.

As a production comparison with wood pulp production the cost of dry bagasse per ton (excluding shrinkage and losses) is \$4.75 to \$5.00 per ton laid down at the mill. With 45% losses the price reached \$7.30 to \$7.70 per ton useable pulp material. Wood varies from \$6.80 to \$21.54.

Added to this are the production costs which convert this material into useable pulp. This is estimated at \$8.65 per ton dry bagasse pulp. The wood costs run from \$7.86 to \$29.85 per ton dry pulp. Wood is debarked, chipped, screened, digested, washed, screened and beaten. Auxiliary equipment such as conveyors, pumps, piping, etc., makes up the wood pulping plant. In the use of bagasse, the corresponding process requires rotary rod milling (or other attrition mills), screening, digesting, washing, and beating. In other words, the wood chipped is replaced by bagasse attrition mills, the rest of the plant being modified for the separation of the fiber and pith fractions. The cost of the corresponding sections in either case (wood or bagasse) is comparable.

Beyond these modifications in wood operation technique to convert to bagasse operation, the costs of both products would be identical to wood as both are handled as

pulp and take the same machines. This information is covered in detail in the report as well as the possibility of using bagasse in various other commercial processes.

History

Dr. Litkenhous' report reviews a rather extended period of time during which bagasse was not only considered as a paper source but a number of attempts were made in commercial production. He says it was talked of in 1838; cites patents in the 1840's and 1850's. In 1856, Thomas Routledge conducted experiments as a substitute for rags, and Henry Lowe, of Baltimore, Md., produced paper good enough for the Baltimore Advocate. A mill erected in 1861 in Wilmington, N. C., produced raw material from this source for paper. High grade printing paper was developed by Alfred Chapman, Liverpool, England, in 1870, but not on a commercial basis.

The report cites many interests and ventures during the balance of the century. Some produced paper; some did not. A Boston company erected a Louisiana mill in 1907 and produced a press board for 2½ years that was dark. Trade publications of the day announced mills for production of paper from bagasse. The prospect was so good that there were also some simon-pure stock selling schemes.

The Olca Sugar Company employed the Eckart process in the Hawaiian Islands and began production of an asphalt saturated felt for mulch paper about 1919. This was one of the successful attempts to use bagasse. About 28 tons of bagasse per 24 hours were consumed for the mulch paper and a yield of about 62 per cent resulted from the bone dry bagasse. The mill has proved very successful for the manufacture of low quality paper which is desired for mulching paper and which can be used in plastics.

The Celotex Corp. located at Marroero, La., was the first to produce successfully and economically products manufactured from bagasse, and has expanded until its operations are now very extensive.

The Celotex Corp., in order to follow experiments in paper making with practical operating conditions, purchased a mill of the Boldt Paper Co., at New Iberia, La. While considerable paper has been made from bagasse, this mill at the present time is making boxboard for box manufacture and wrapping paper for Celotex products.

The success of Celotex lies in their high yields of product and their low cost mechanical operations upon the bagasse.

Bagasse Properties

Bagasse is made of two distinct fiber parts of different physical properties, i.e., the pith or parenchyma and the long fiber. Since these are found in about equal quantities, the utilization of bagasse is made more difficult than in plants where either the fiber or pith is in large amounts as compared to the other. Other materials found in bagasse are lignins, waxes, pentosans, pectin, and silica.

The chemical composition of the fiber as compared with the pith is not so great—the greatest variance being silica and ash. Compared to wood, bagasse contains more ash, less cellulose, less lignin and more parenchyma.

A comparison of various fiber lengths, indicates bagasse fiber is equivalent in length to both Douglas and Balsam fir. However, the fiber thickness is approximately 0.018 mm. wide for bagasse which, when compared to wood, permits about four layers of bagasse per each for wood. This shows the length to diameter ratio (slenderness ratio) of bagasse is much larger than wood and indicates it definitely has a place in specialty papers. Bagasse fiber is similar to cotton and wood fibers in that it has a spiral structure.

Dried bagasse and pulp made from bagasse in which the pith had not been removed hardens so that it resists water and reacts more slowly chemically. This indicates that bagasse should be treated prior to drying. Since the best place for such treatment is at the mill grinding bagasse, any pulping of bagasse would logically take place at or near a mill.

Pith fibers in crude bagasse is a decided disadvantage in converting the fibers into paper in that the pithy fibers are attacked much more avidly by the chemicals than the fiber. This results in a loss of chemical and an overtreatment of the fiber giving what is known as "hydrated pulp." The pithy materials tend to clog the wires on the paper making machine. From this information the logical procedure would be to separate pith and fiber before reacting so that each may be treated to best advantage with a saving in chemicals.

The cellulose fibers of bagasse are extremely regular and smooth.

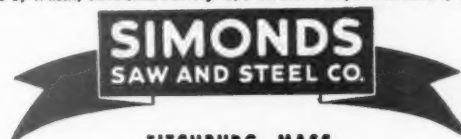
(Continued on page 70)



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FITCHBURG, MASS.

PIN DINNERS BRING MANAGEMENT AND EMPLOYEES CLOSER TOGETHER



PIN WINNERS at the West Linn, Ore., dinner:
Top row (left to right): J. D. ZELLERBACH, President of Crown Zellerbach Corp., with HUGH MATHESON, 40-Year employee, and smiling over Mr. Zellerbach's shoulder is JOHN REAM, Personnel and Safety Supervisor; TOM PATTERSON, JR., 25-Year man and a war veteran, and DAVE HERD, 35-Year employee.
Lower row (left to right): HARLEY A. MILLER, 45-Year Pin recipient with a perfect safety record; JOHN MATLEY, 35-Year man, and KENNETH THOMPSON and G. L. JOHNSON, both 25-Year men who served Uncle Sam in the last war.
JOHN BOLLE, another 40-Year man, could not be present.

One of the most effective means of building up mutual confidence, respect and teamwork between employes and management was demonstrated in a series of service pin dinners held last month by Crown Zellerbach Corp.

In successive "one-night stands," J. D. Zellerbach, president of the company, and Albert Bankus, vice president in charge of manufacturing, addressed dinner meetings on Feb. 18 at West Linn, Ore., Feb. 19 at Port Townsend, Wash., and Feb. 20 at Port Angeles, Wash. Aided by Don Denman, another vice president, at the Port Townsend meeting and by Otto R. Hartwig, general safety director for the company, at West Linn, these top executives told of steps their company is taking to improve both present and future

working conditions and opportunities for employes.

They spoke as "employes" themselves of the corporation. They told of advances in safety, of new equipment on order or being installed which will offer new opportunities of promotion, or plans for entering more lucrative and less competitive markets and of how the timber resources of the company are being husbanded and more closely utilized in order to assure a livelihood for present and future generations—"our children and your children."

Nor was the opportunity for closer community relations neglected, with local mayors or other civic leaders as honor guests. They were made to feel they "belonged," too, and speakers stressed the new wealth and prosperity which the mills had brought to the communities.

Intimacy and good fellowship were stressed, and that is a point which, perhaps, may be noted by other companies seeking methods of building up better management-employe relations. The speakers themselves were "victims" of good-humored banter in the fashion of the famous Washington gridiron dinners.

Probably the principal reason that this spirit of good fellowship was achieved was due to Billy Welsh, now a veteran toastmaster at their affairs. Mr. Welsh, who holds no official title, is charged with certain phases of public and employe relations for the company.

Mr. Zellerbach's Talk

Most intimate speech of all, and, therefore, one that held close attention of all three audiences, was that of Mr. Zellerbach. It was an unusual speech for such an event, being almost wholly a discussion of his personal experiences in London and Paris last fall as a diplomat—he was the employe representative to the International Labor conference in Paris in October.

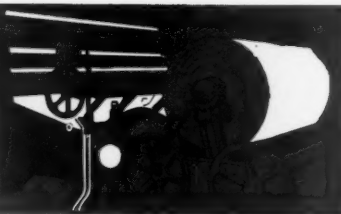
Mr. Zellerbach made himself the "goat" of his own stories and that in itself proved an effective means of not only holding audience attention but also in establishing the points he wished to make. He told of his troubles in London without food coupons, of his experiences with powdered eggs, of riding into Paris sitting on his baggage, of having a bath but no hot water, towels or soap.

He brought home realistically to his audience the tragedy of inflation and of the critical shortages in Europe by his description of \$40 "black market" dinners, of how he learned to "tip" with cigarets instead of money (because they were more desired), and of the "magic" of soap or cigarets in bartering.

"Money virtually has no value because so little can be bought with it," he said. "Because of these conditions, there is little incentive to work in France, as there is so little to get from working. The people are not settling down to work. A year after the war, most industries are operating at only 20-30% of capacity."

The French Minister of Labor told him that unrest was making it impossible to get enough workers to man the mines and repair railroads. The Minister of Labor in Poland, a

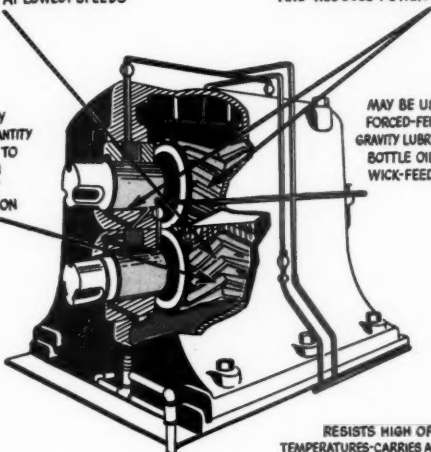
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In addition to gear lubrication, Calol Vistac Oils are used in rock drills, jackhammers and other air tools. They atomize quickly, are stable and flow easily in cold temperatures. They are made in six grades: 9X (SAE 10), 14X (SAE 20), 19X (SAE 40), 36X (SAE 40), 45X (SAE 40).

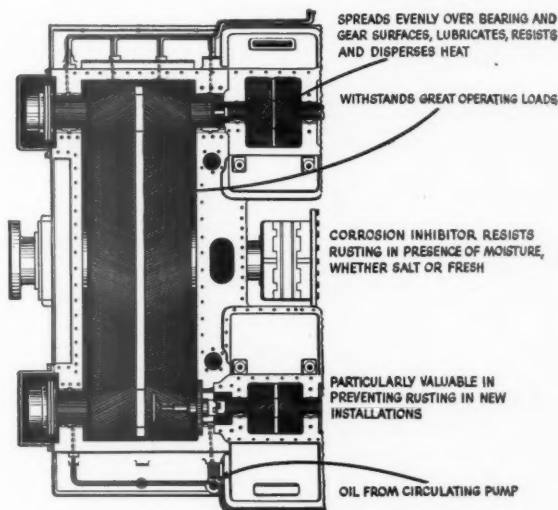
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Calol OC Turbine Oil 19 is a compounded oil, made from selected crudes. It contains a highly effective rust inhibitor which protects against both fresh and salt water. In official tests, steel strips immersed in mixtures of Calol OC Turbine Oil 19, fresh water and synthetic sea water showed no sign of rusting after 48 hours. Calol OC Turbine Oil 19 also contains an efficient oxidation inhibitor.

The high film strength of Calol OC Turbine Oil 19 provides a wear-reducing cushion that carries the heavy weight imposed on turbine bearings. Minimum wear prevents rotor misalignment trouble. Calol OC Turbine Oil 19 is non-corrosive and separates rapidly from water with little sludge formation.



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AND DISPERSES HEAT

WITHSTANDS GREAT OPERATING LOADS

CORROSION INHIBITOR RESISTS
RUSTING IN PRESENCE OF MOISTURE,
WHETHER SALT OR FRESH

PARTICULARLY VALUABLE IN
PREVENTING RUSTING IN NEW
INSTALLATIONS

OIL FROM CIRCULATING PUMP

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former mines union chief, told him many thousands were living in bomb craters or wrecked homes, with serious lack of food and clothing. But in Belgium, Holland and Poland, the people were more united politically than in France, and for this reason, he said, more were working and "all groups seemed to feel they had to work together."

He urged his listeners to "get behind the U. S. government and UNRRA in their efforts to rehabilitate Europe" and he gave these reasons for doing so:

"1. Europe looks to U. S. for leadership and help and, morally, it is a good thing to do;

"2. For selfish purposes—because it will create markets for our country. And, by raising standards of living abroad we create the only real protection from unfair competition for our own industries, and

"3. To remove a major cause of war—mass poverty. Wars have started when other countries reached out to get things forcibly that they could not get any other way."

In elaborating on his second point, Mr. Zellerbach recalled that the pulp industry itself was threatened in the '30's by Scandinavian pulp made in nations where the standards of living were lower than in this country.

"Low labor costs in other countries are a drag upon raising of our own labor standards," he said. "Other industries in the U. S. have been protected somewhat by tariffs. But even tariffs, in time, fail to protect; so the only real protection is to raise standards in other countries."

In discussing the International Labor Office, whose purpose is "to improve the economic and social status of workers throughout the world," Mr. Zellerbach said both employer and employee delegates to its 27th meeting in Paris "were on

EXCERPTS FROM TALKS BY OFFICIALS AT CROWN ZELLERBACH PIN DINNERS

J. D. Zellerbach:

"Low labor costs in other countries are a drag upon raising of our own standards. We, in the pulp industry, recall an example of this when Scandinavian pulp was sold in this country for less than what it cost us to make it."

"Even tariffs, in time, fail to protect: The only real protection is to raise standards of living in other countries."

"There are three reasons for backing up UNRRA and efforts to rehabilitate war-ravaged countries—because it is a good thing to do; because it raises their standards of living and creates markets for us, and because it removes a major cause of war, which is mass poverty."

"The time to work out labor-management agreements is before a crisis develops—in the cool light of reason and not the heat of conflict."

Albert Bankus:

"We now have security for employees as well as for the stockholders."

"As we develop our expansion program and go into higher grades of paper, there will be more opportunities for advancement of employees."

"Biggest problem of management today is finding and selecting men for greater responsibility."

Don Denman:

"Anyone who expects to remain in the forest products industries in the west will have to develop new techniques and methods."

"Four steps we will take are to clean up the ground, not to cut more than will grow in any cycle of four or five years, see that each acre is re-stocked naturally or by planting and completely re-vamp sawmills and wood preparation."

Otto Hartwig:

"Industrial plants are becoming the safest places to be—rating above the American home."

"You had your own reasons for coming to work with us. That you stayed so many years, shows the company, too, is glad to you came to work for it."

the same side on everything." In contrast, at the first meetings in the 1920's they "couldn't agree on anything."

He saw in this a lesson for the U. S. "a pattern for industrial relations"—and predicted that if frequent conferences are held by industry management and unions in this country "the participants will get to know each other better and will solve many problems before they become acute."

"The time to work out agreements is before a crisis—in the cool light of reason, and not in the heat of conflict," he said.

Mr. Bankus' Address

The talk by Mr. Bankus brought out contrasts between conditions of the industry 40 years ago—when he first joined a predecessor company of Crown Zellerbach Corp.—and today. He recalled when four workers worked 11 hours on day shift; 13 hours at night; when wages were 17½ cents an hour or less as compared with the present \$1.05 base hourly pay on the Pacific Coast.

"We now have security for employees as well as for stockholders," he said and noted four ways in which this had been done: (1) building plants of concrete and steel—modern, well-lighted, safe and made to endure; (2) permanence of water power supply; (3) permanence of wood supply, and (4) a retirement and pension fund for employees.

Pointing out that the expanding manufacturing program of the company, being developed under his direction, was calling for greater skills, Mr. Bankus said "there will be better chances for advancement and employees should prepare for the jobs ahead."

"The biggest problem facing management today," he said, "is to find and select men for greater responsibility."

At each of the dinners, Mr. Zellerbach presented the pins, with a firm handshake for every single one of the grand total of 256 pin winners (excepting a few absentees) and his



MANAGERS OF THREE MILLS in Port Angeles, Wash.—which makes it one of the great industry centers of the continent—were at the Pin Dinner in that thriving little town.

Left to right: WILLIAM BREITENBACH, Vice President and Manager of Rayonier Incorporated's sulfite pulp mill there; RAY DUPUIS, Resident Manager of Crown Zellerbach newsprint mill, who was the host, and C. VERNE BASOM, Resident Manager, Fibreboard Products Inc.

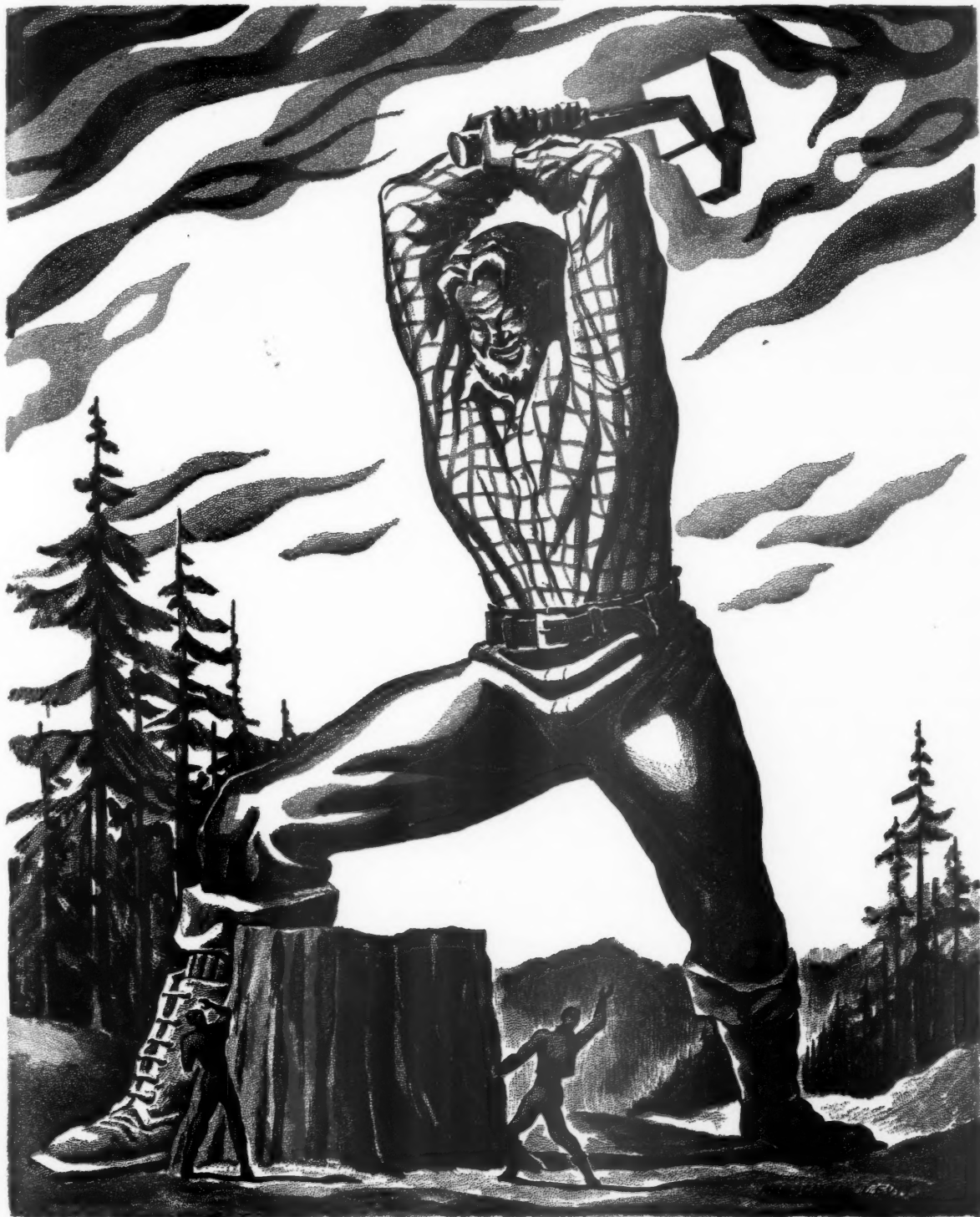
THE MEAD SALES COMPANY

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DISTRIBUTORS OF WOOD PULP

BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP



Paul Bunyan gets rid of the stumps . . . One blow was generally enough to send 'em six or eight feet below the surface.

A reproduction of this incident from the fabulous life of Paul Bunyan—the fourth of a series—will be sent on request. It will contain no advertising.

handshake was just as hearty for the last ones as the first ones!

West Linn Dinner

The dinner at West Linn was held in the high school, with a musical program for entertainment. Clarence E. Bruner, resident manager, welcomed the guests. Pins went to 78 persons with a total of 1390 years' service ranging from 45 to five years each.

In his talk at West Linn, Mr. Hartwig recalled that the mill back in 1913 had a per-employee annual accident rate of 5 out of 6—typical of the industry in those distant days—but today this has been reduced at West Linn to only 1 out of 10.

He declared that industrial plants, where "the average human spends about one-third of his normal adult life"—are becoming the safest places to be—rating above the American home.

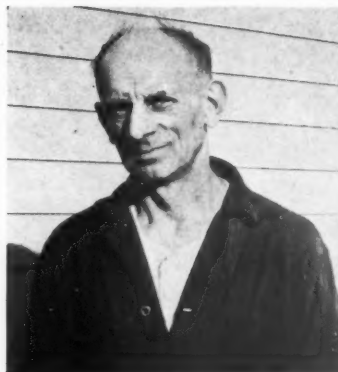
Port Angeles Dinner

The Port Angeles dinner, in the American Legion hall, with food provided by women of that organization, was not only a pin dinner but a belated observation of the 25th anniversary of the newsprint mill in that city. On Dec. 13, 1920, the first rolls were produced on No. 1 machine. A week later the first shipment of 408 rolls—about 1105 lbs. each—were shipped by boat to San Francisco.

Mr. Zellerbach recalled that when he and his father first traveled to Port Angeles, they went by boat to Port Townsend and then took a little train, but the locomotive operator made an unscheduled stop mid-way to get out and pick a bunch of rhododendrons. They stayed in the old Merchants' Hotel, "with seagulls roosting on our window ledge."

Raymond A. Dupuis resident manager, who opened the Port Angeles meeting, commented that now that the war is over he saw indications that the mill would get back to the status of having a big majority of its employees among those who have worked from 5 to 25 years for the company.

At Port Angeles were 129 men who received pins, of which 20 were in the 25-year group. Ray Dupuis' father, Leon, the former manager, who holds a 30-year pin, was an honor guest. More than 250 of the 410 employees of the company now have pins for five years or more. Mr. Welsh brought out that 41 of the 25 and 20-year-pin winners were home-owners and the other two were bachelors.



SERVICE PIN winners at Port Townsend included:

WILLIAM BUSE (upper left), Class A Millwright, who holds 35-year record, beginning at Camas and carrying on at West Linn and Port Townsend mills;

CLAUDE MAULDING (upper right), Tour Boss of Paper Machines, who worked 25 years at Ocean Falls and Port Townsend;

And a group of 20-year pin winners (left to right): **VICTOR G. LINN**, Electrician; **JAMES A. CAMPBELL**, Millwright; **EDWARD C. MOAR**, Spare Machine Tender, and **ROBERT J. NOTT**, Digester Cook.

Among 16 15-year pin winners were **BERNARD T. MULLANEY**, Personnel and Safety Supervisor, and **HAROLD A. BOGAN**, son of **AL BOGAN**, who is Assistant Plant Engineer now in charge of Construction. **ARCHIBALD GRANDAW**, Bag Factory Foreman, was a ten-year pin winner.



THESE TWO WERE AMONG recipients of 20-Year pins—

DON DENMAN (left), Vice President in charge of Timber and Logging, who was honored at Port Townsend; and **WILLIAM M. LOCKE**, who recently resumed duties as Chief Engineer of Steam Plant, Port Angeles mill, after seeing action in South Pacific with Coast Guard.

Port Townsend Dinner

The Port Townsend dinner was held at the 50-year-old Chevy Chase seaside resort on Discovery Bay. Forty-nine pins were awarded here, including a 20-year pin to Vice President Denman.

E. W. Erickson, the resident manager, started off the meeting by not-

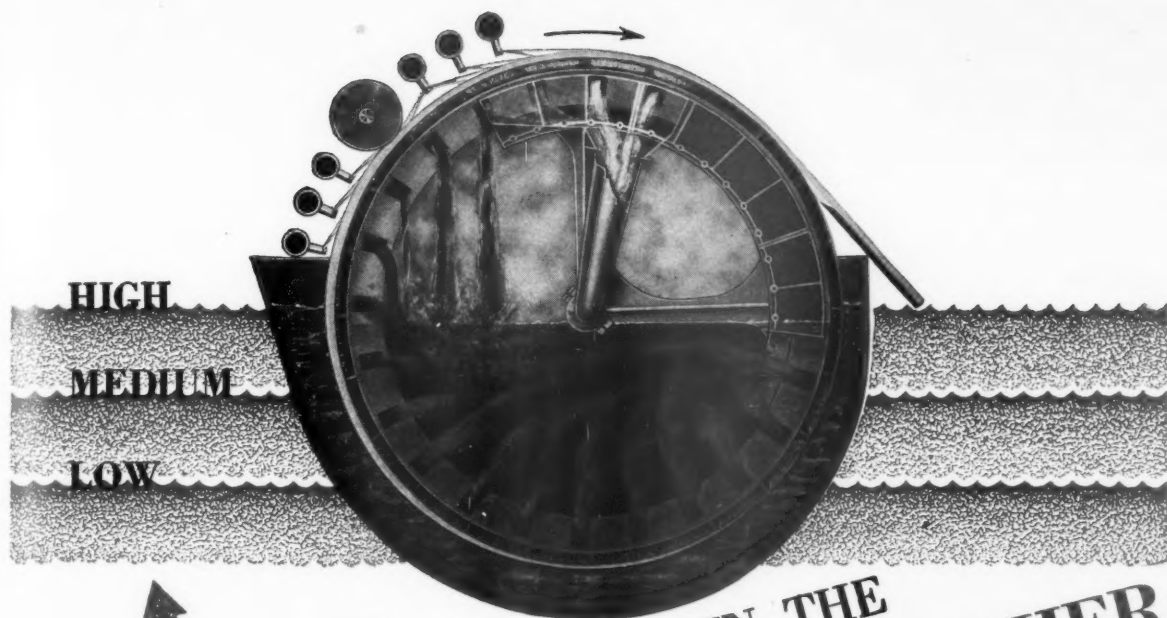
ing that 202 of 393 employees at that mill now had five years or more of service in the company. He also observed that 194—nearly half—went into armed forces during the war.

Mr. Denman was called upon to outline the developments in timber and logging department which he heads up. He outlined steps taken to attain the goal he has set of "wood in perpetuity" and said that "any one who expects to remain in forest products industries in the west will have to think in terms of wood 6 ft. long and six inches in diameter" and this means using much wood that was formerly left on the ground or burned and the development of new methods of logging and wood preparation.

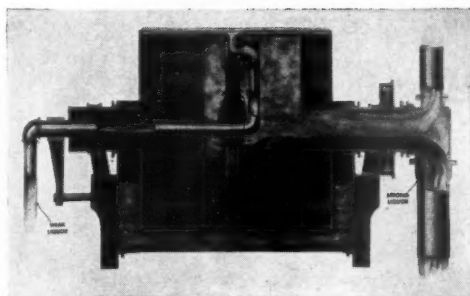
He outlined four steps for the company, some of which he said are already being taken in small operations:

1. Clean up stands so that not more than a cord or two are left on the ground—that being only such wood as is absolutely worthless.

2. Not to cut any more than will



WIDE RANGE OF SUBMERGENCE PERMISSIBLE IN THE OLIVER RINGVALVE WASHER



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When you install an Oliver Ringvalve Washer, you are not forced to operate at trunnion submergence. The Ringvalve is set for a low submergence of 29% but could be set even lower if desired. The point is the Ringvalve is capable of pulling the liquid from a low submergence, if necessary, to the highest point in the travel of liquid from vat to trunnion. *Any* vacuum drum filter operating with low submergence must do the same thing.

But the question of submergence is not too important. What is more important is high capacity, excellent washing efficiency, adaptability to counter current washing, ability to do more work with fewer units . . . features that make the Oliver Ringvalve Washer the *best* buy in the industry today for washing brown and bleached stocks. Numerous repeat orders for Ringvalve Washers back up this statement.

The Oliver Ringvalve Filter is described in Folder F-106. We'll be glad to send you a copy.



OLIVER UNITED

FILTERS INC.



THESE MEN RECEIVED 25-YEAR PINS at the 25th anniversary dinner of the Port Angeles newsprint mill (left to right): JOHN SOMERS, Finishing Room Supv.; CHARLES L. SPICER, Shift Supt.; F. JOHN WEBSTER, Painter; CLAUDE L. RIVETTS, Machine Tender; EDWARD H. VICARY, Supervisory Engineer for the corporation; THOMAS B. HARGREAVES, Assistant Manager; ARTHUR SEVERSE, Shift Supt., and CHARLES HUDSON, Pipefitter Supvr.



MORE 25-YEAR PIN WINNERS at Port Angeles Newsprint Mill (left to right), ANDREA CASILIO, Millwright; ARCHIE J. HOOPER, Hydro Plant Supvr.; ALBERT E. HENDERMAN, Machine Tender; J. WILLIAM EDWARDS, Paper Mill Supt.; A. GEORGE JOHNS, Beater Room Supvr.; ROY H. JOHNSON, Accountant; GEORGE O. OSTENSON, Machine Tender; PAUL LAMOUREUX, Machine Tender, and WALTER LAFFMAN, Jiggerman.

grow in any cycle of four or five years.

3. See that each acre cut over is fully re-stocked either naturally, or by planting.

4. Completely re-vamp sawmills and wood preparation plants in order to develop more complete utilization of wood.

Principal Pin Winners:

45 Years—Harley A. Miller, West Linn.
40 Years—John Bolle and Hugh Mathe-son, West Linn.

35 Years—Dave Herd and John Matley, West Linn, and William Buse, Port Townsend.

30 Years—Henry O. Cushman, Andrew E. Deschamps, George Swan and Jesse A. Harris (paper mill supt.), West Linn.

25 Years (at West Linn)—Carson R. Amrine, Walter A. Anderson, Louis Char-riere, J. V. Dustin, Max Gatewood, Jos. Greer, Earl A. Irish, G. L. Johnson, D. J. Larios, Walter E. Lee, Harry Meten, Flor-entine C. Mighells, Tom Paterson, Jr., Guy Proffitt, Ralph L. Thomas, Kenneth Thompson and Fred Yoder.

25 Years (at Port Angeles)—Andrea Casilio, J. William Edwards (paper mill supt.), Tom Hargreaves (asst mgr.), Al-bert Henderman, Charles Hudson, Roy Johnson, George Johns, Archie Hooper (hydro electric supt.), Charles Klepford, Walter Lafeman, Paul Lamoureux, Philip Morio, George Ostenson (brother of Gus at Camas), Otto Petit, Claude Rivetts, Arthur Severse, John Somers, Charles Spicer, John Webster and Edward H. Vicary (supervisory engineer for the company).

25 Years (at Port Townsend)—Claude Maulding.

Among 20 Year awards, were pins for Don Denman (Seattle), vice president; William M. Locke, steam plant engineer; Clyde Basom, backtender and brother of

the manager of the Port Angeles Fibre-board mill there, George Davison, wood room foreman, and Henry Hale, sulfite cook, all at Port Angeles. Four 20-year men at Port Townsend were Robert Nott, digester cook, James Campbell, mill-wright, Victor Linn, electrician, Edward Moar, spare machine tender.

Among 15 year men were Merrill Cash-man, personnel and safety supervisor at Port Angeles; Bernard T. Mullaney, who holds the similar post at Port Townsend; Wilbur J. Lowndes, engineer in the Central Engineering Office, Seattle; Sidney Hoare, shipping clerk in San Francisco on leave, and Harold Bogan, son of Al Bogan, assistant plant engineer at Port Townsend.

Rayonier Pins

Rayonier Incorporated presented pins to 63 employees of the Hoquiam, Wash., mill on Feb. 7 for service of 5-15 years.

Twenty 15-year awards went to Andy Bockh, Robert E. Brown, Melvin Burk-land, George Easter, Ernest Erickson, Le-land Galloway, Joseph Greenleaf, Maur-ice Gunderson, Hubert Lanphere, Charles McDougall, Joe Novak, Olaf Olson, B. F. Patchett, James Philbrick, August Rank, Glen Severns, Clyde Wardlow, Foster Weihlen.

Zellerbach-Haber Wedding

William J. Zellerbach, late a lieutenant in the United States Naval Reserve, son of Harold L. Zellerbach, president of Zellerbach Paper Co., was married Feb. 25 to Miss Margery Haber, San Francisco.

The bride's only attendant was Mrs. Stephen Loew, Jr., the former Rolinde Zellerbach, sister of the groom. Stephen A. Zellerbach, USNR, only brother of the groom, was best man.

The young couple left for southern California for the first half of the honey-moon, and then returned to San Fran-cisco to join Mr. and Mrs. Harold Zeller-bach on an extensive Eastern trip. Mr. William Zellerbach will be connected with the paper company on his return.

Camas Paper School Graduation March 19

Final date for the 13th Annual Paper School Graduation at the Camas, Wash., mill of Crown Zellerbach Corp., with its accompanying banquet, has been set for Tuesday evening, March 19. Meeting place will be the Camas High School gymna-sium.

Exactly 100 students are enrolled this year; 52 are registered for the first year course; 28 for the second year; 11 for third year; and 9 to finish the completed four year curricula. A. G. Natwick, as-sistant resident manager, at Camas, is the dean.

Speaker of the evening will be George W. Gleeson, dean of the school of engi-neering and industrial arts, Oregon State College; W. D. Welsh, Crown Zellerbach Corp., San Francisco, will be toastmaster; A. B. Layton, vice president of Crown Zellerbach Corp., San Francisco, who has recently returned from service with the U. S. Navy, will make the diploma pres-entations.

One Kelley Son Marries; Another Is Superintendent

Cam Kelley, Navy veteran son of Claude P. Kelley, production manager of Pacific Coast Mills, Ocean Falls, B. C., was married March 5 to a Seattle girl, Nellie Caso. His father was recently pro-moted from paper mill superintendent to production manager.

Another son, Harvey Kelley, is now superintendent of newsprint at the E. B. Eddy Co., Hull, Quebec.

Elliott Irvine Elected Rotary Secretary

Elliott C. Irvine, assistant office man-ager for the Crown Zellerbach Corp., Port Townsend, Wash., division, was recently elected secretary of the Port Townsend Rotary Club.

Daughter Is Born To B. F. Mullaney

A daughter, Susan Carol, was born Feb. 19 to Bernard F. Mullaney, person-nel and safety supervisor, Crown Zeller-bach Corp., Port Townsend, Wash., and Mrs. Mullaney.

Since Maxwell Loomis went into pri-vate business some months ago, Mr. Mullaney has carried on in sole charge of his department.

Myron Scotts Adopt Baby Daughter

Adoption of a baby daughter by Myron A. Scott, Rayonier's office manager at Port Angeles, Wash., and Mrs. Scott has finally been completed after some months of preliminary arrangements with an adoption agency in Seattle.

Production of Alcohol Plant at Bellingham

During the last ten months of 1945—since the plant began operation—produc-tion of 190-proof industrial alcohol from sulfite liquor at Puget Sound Pulp & Timber Co., Bellingham, Wash., totaled 1,292,937 gallons.

Since the war's end, the entire output has been taken by a conversion plant in the Chicago area and presumably used for a variety of products.

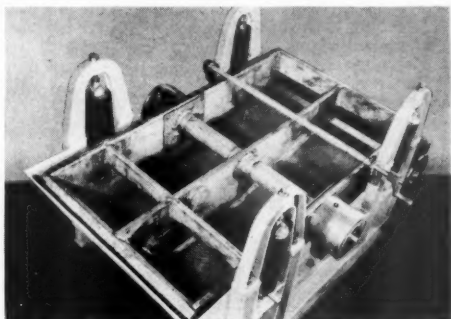
See How This JONSSON SCREEN

**Takes Out The
KNOTS
But Not
The FIBRES!**



You can see the knots on their way out and the showers removing the last trace of good fibres from the knots. The unique,

patented action of the Jonsson Screen takes out the knots clean and whole. It's a real knotter — doesn't leave part of the job to riffles or first screens.



One small (6 ft. square) Jonsson Screen handles as much as 100 tons per day, using very little power and handling consistencies up to 1%. It gives you maximum quality and capacity at minimum cost.

Why not check up and see how much better and more economically it can do the job than the knotters or screens you're now using.

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

Father and Son in Stock-Maker Firm



C. W. (Whit) MORDEN (left) and his son, BURKE ((R. B.) MORDEN, who have joined forces in Morden Machines Co., Portland, Ore. Burke Morden started from scratch in the pulp and paper industry as of February 1, but he brings a variety of allied experience with him. A graduate of the University of Oregon, 1936, with a degree in architecture, he had established his own firm. At the war's outset, Burke went with Buckler Co. and Buckler-Chapman as Chief Architect under the Chief of the Construction Division. His responsibilities covered supervision of engineering, estimating and material control. Whit Morden said increased use of Morden Stock-Makers have necessitated more personnel to serve customers.

Morden Machines Co., Portland, Ore., on February 1, announced the association of Burke (R. B.) Morden with his father, C. W. (Whit) Morden.

The son, Burke, has not previously been associated with the pulp and paper industry, but brings a variety of allied experience with him. A graduate of the University of Oregon, 1936, with a degree in architecture, he was employed with a well known Portland firm in this field before establishing his own firm.

At the opening of the late war, Burke went with Buckler Company and Buckler-Chapman as chief architect under the chief of the construction division.

His responsibilities covered supervision of the engineering department, estimating and material control, and the coordination of this work with the technical division of the U. S. Maritime Commission in San Francisco and Washington, D. C., the naval architects in New York, and the engineering departments of the three Kaiser shipbuilding yards in the Portland area.

Mr. Whit Morden says, "The increasing use of the Morden stock-maker continuous treatment stock preparation throughout the country has necessitated more personnel to properly serve our customers. Burke's coming in at this time will be a great help to me and I am sure he is going to enjoy his association with the industry."

High War Honors For Industry Man

First Lieut. Michael J. Desiderio, Newark, N. J., has returned to his civilian post as sales manager and coordinator of production of Clifton Paper Board Co., Inc., Clifton, N. J. And among his decorations is that of the Order of the British Empire, presented to him by Field Marshal Sir Harold R. L. G. Alexander at Caserta, Italy, for the paper man's work with the Allied Military Government there. Lieut. Desiderio has four battle stars won in the Italian, Sicilian, and North African campaigns. He entered the service as a private in July, 1942.

Knowlton Mill Installs New Boiler

As part of an electrical modernization program under way at Knowlton Bros., Watertown, N. Y., the management has installed a new Babcock & Wilcox 370-hp, 250-lb. pressure boiler plant and Westinghouse automatic controlled stoker.

R. W. McCormick has returned to his duties as vice president of this company after being discharged from the Navy with the rank of commander. His three years service included tours of duty with the Eastern Sea Frontier and later with General MacArthur's staff overseas.

Canadian IP Borrows \$15,500,000

Canadian International Paper Co. has announced that it has borrowed \$15,500,000 U. S. funds from Chase National Bank, Bankers Trust Co. and First National Bank, Boston, on 1½% notes maturing July 1, 1949. The loan is secured by pledge of short term Canadian government bonds to 110% of its face value. Principal of the notes has been guaranteed by International Paper Company.

Operating at Full Capacity

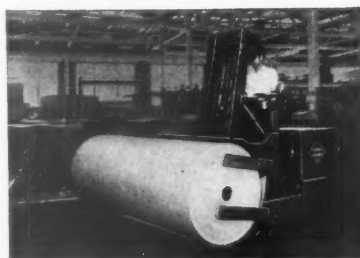
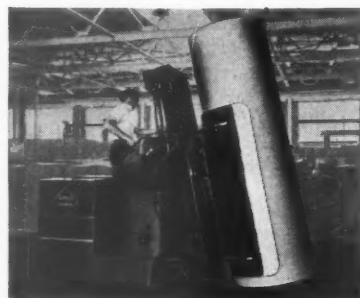
J. B. Piper, sales manager of Provincial Paper Co., whose operations were described in the October issue of PULP AND PAPER INDUSTRY, has issued a statement to the effect that the company is operating all its facilities at capacity. The company operates mills at Port Arthur, Thorold, Georgetown and Mille Roche, all in Ontario.

"There is actually about 8% more paper in tons and perhaps 20% more in terms of reams or yards being made now than there was immediately before the war," states Mr. Piper. "It is improbable that increased facilities are the solution of the present situation and it is likely that sooner or later a reversion of demand to something approaching normal will prove to be the answer."

The Provincial Paper Co. executive expects that government and military usage of paper will decline but this will be largely offset by increasing business and rehabilitation demands.

Joins Research Staff

Vincent Callaghan, formerly with the control laboratory of Bathurst Power & Paper Co., has been transferred to the same company's research staff. Everett Cann has recently joined the same staff.



ABOVE INDUSTRIAL TRUCKS handling newsprint can tilt two-ton roll forward or backward, elevate it and rotate it. Truck itself moves forward, backward, sideways. It has been developed by Elwell-Parker Electric Co., Cleveland.

To pick up roll in vertical position, fork is pushed under it, roll is held securely in semi-cylindrical cradle, which is tilted backward by means of truck's upright column, lifting roll off floor. For release in vertical position, it is tilted forward until part of roll's weight rests on floor. There are rotating and elevating mechanisms on the upright column.

PAPER CANS FOR FROZEN FOODS

(NEWS ITEM: A liquid-tight container made of paper saves space in locker and home freezer cabinets.)

A newly designed frozen food container permits economical use of refrigeration space. Made of a treated paper-board body with snap-on metal closure, this new "can" offers maximum protection against dehydration, oxidation, leakage and loss of flavor and vitamins. Adaptable for automatic high-speed filling and closing operations which save time and labor.

Today, paper is serving thousands of new uses—baking dishes . . . shipping sacks . . . flash-light cases . . . screw caps. New uses call for new standards of lightness and toughness, new standards of quality and performance . . . New responsibilities—new opportunities for the Pulp and Paper Industry.

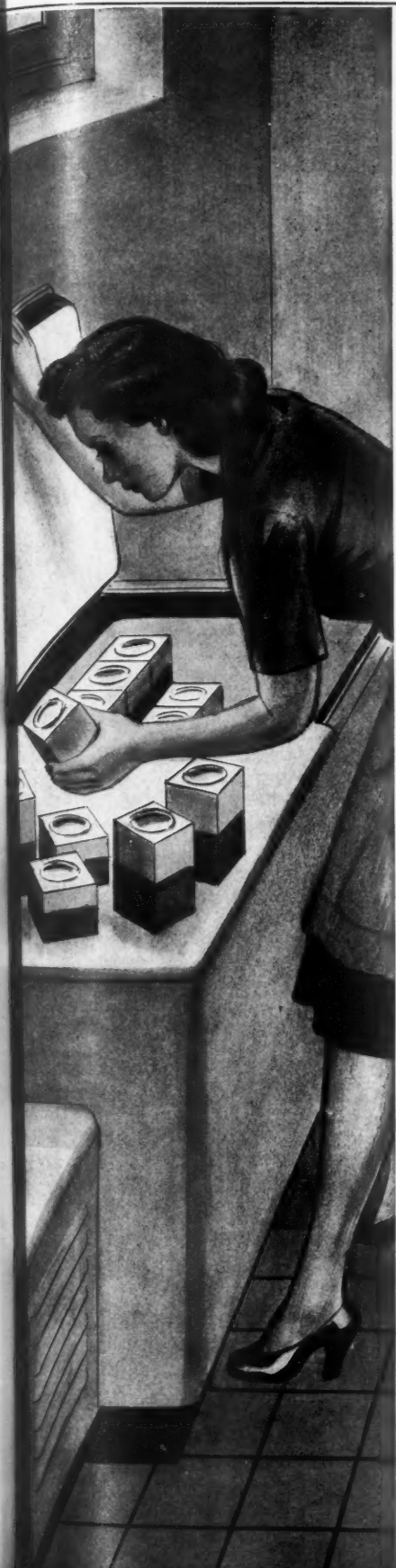
Puseyjones is now devoting itself completely to the design and construction of Paper-Making Machinery built to new high standards of speed and efficiency, and to the modernization of existing machines.

Among the new machines now on order, Puseyjones is building two of the largest and fastest Fourdrinier Paper-Making Machines in the world—one for book and high-grade printing papers and one for white paper for bags. Also a cylinder machine of the latest type for high-grade cardboard specialties, equipped with improved Stream Flow Vat Systems.

Puseyjones Engineers will welcome the opportunity to work with you in solving production problems.

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U. S. A.



Stitt Becomes Resident Manager at Antioch Mill; Buckley Promoted to Superintendent at Fernstrom



C. M. STITT, newly appointed Resident Manager at Antioch division of Fibreboard Products, Inc.

Wilfred Hawkey, resident manager of the Antioch, Calif., division, Fibreboard Products Inc., for the past several years, has retired, and C. M. Stitt, assistant manager, has succeeded him. A \$1,000,000 expansion program at Antioch, including addition of a board machine, was recently announced.

Mr. Hawkey has been with Fibreboard more than 23 years. He started with the Stockton, Calif., division, moved to sales in San Francisco, where he worked three years. He then went to the Sumner, Wash., division, which he managed for 12 years. In 1942 he came to Antioch.

C. M. Stitt, new resident manager, was the former plant engineer at Antioch. He started with The Paraffine Companies, Inc., in Emeryville, Calif., following his graduation in mechanical engineering from the University of California. At Paraffine, Mr. Stitt did general engineering work and was assistant to the plant engineer.

After The Paraffine Companies, Inc., and National Paper Products Co. merged, Mr. Stitt joined Fibreboard at the Antioch plant as plant engineer and has been there ever since.

He is married and has two children. One of his hobbies is municipal government, and he has been mayor of Antioch twice, and at the present time is serving on the city council. He is also a golfing fan.

William Van Voorhies is plant engineer at Fibreboard's Antioch division.



RICHARD S. BUCKLEY, Chemist and Technical Director at Fernstrom Paper Mills, Pomona, Calif., since 1939, is promoted to Superintendent.

Richard S. Buckley, chairman of the Paper Makers and Associates of Southern California, has been named superintendent of Fernstrom Paper Mills, Pomona, Calif., moving up from technical director.

He succeeds Charles G. Frampton who has retired after many years as superintendent. The latter, however, will continue to make his home at Pomona and serve as a consultant on Fernstrom operations.

Dick Buckley was born and raised at Lowell, Wash., and attended Everett, Wash., high school. He received his B.S. in chemical engineering at Washington State College, in 1933, and during summer vacations worked in various departments of Everett Pulp & Paper Co. Later he was chemist at the sulfite pulp mill at Anacortes, Wash., and with Weyerhaeuser Timber Co.'s pulp division in Everett. In 1939 he accepted the post of chief chemist with Fernstrom, later becoming technical director.

Among the major problems he had to face—a war emergency—had to do with conservation of pulp by utilization of waste papers. Difficult because of Fernstrom's specialized operations, it was accomplished and permitted the mill to keep up war-time production.

Mr. Frampton's Career

Mr. Frampton, also a former man of PASC and in 1943-4 chair-

man of the Pacific Coast division of American Pulp & Paper Mill Superintendents, has had an extraordinarily varied career in paper-making, in many parts of the country.

Born at Hamilton, Ohio, he worked for Champion and other Ohio companies and in the south before he came west in 1909.

He arrived at Oregon City, working for Willamette Pulp & Paper Co., then at Lebanon, Ore.; was at Coos Bay for C. A. Smith Pulp Co.; at Millwood, Wash., for Inland Empire Paper Co.; in 1913 back in Oregon City; thence to Camas, Wash., in 1916 he was night boss at Floriston, Calif. Later he became assistant superintendent at California-Oregon Paper Mills, Los Angeles, staying there six years, the last three as night superintendent.

He joined Fernstrom in 1926 when the Yankee machine was first started up. However, he left there a few months later for Pacific Mills, Ocean Falls, B. C. Coming south a year later, Mr. Frampton became general superintendent at Columbia River Paper Mills, Vancouver, Wash. He stayed two years and, in 1930, he became a fixture at Fernstrom as superintendent of the paper mills.

Ed Silver In "Comeback" As Pine Falls Manager

T. E. Silver, Iroquois Falls, Ont., has been appointed manager of the Manitoba Paper Co.'s paper mill at Pine Falls, assuming the position formerly held by the late C. C. Irving.

Silver came out of retirement to take the job. A former manager of mills for Abitibi Power & Paper Co., he quit active work because of ill health in 1943.

He was guest of honor at a luncheon in Winnipeg recently, given by W. H. Carter, president of Winnipeg Electric Co.

Lovegren Chief Chemist At Inland Empire

Frank J. Lovegren has returned to Inland Empire Paper Co., Spokane, Wash., assuming the duties of chief chemist. He was on leave from the mill during war-time service in the navy.

Chemist at Red Rock

Gerald Eardley has been appointed chief chemist at the Red Rock (Ontario) mill of Brompton Pulp & Paper Co.

Joins Fir-Tex

Russell F. Martini, captain in the Engineer Corps, U. S. Army, with 29 months service, 19 overseas, has joined the drafting department of Fir-Tex Insulating Board Co., St. Helens, Ore. Martini is a graduate of Oregon State College.

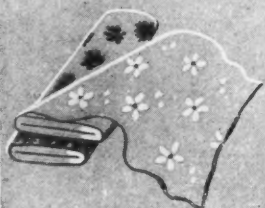
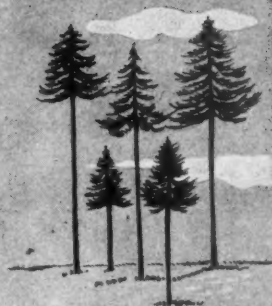
two decades of pioneering

A Continuous Record of Product Development



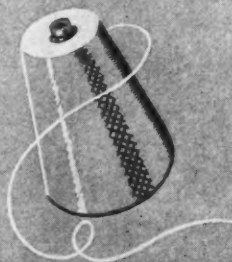
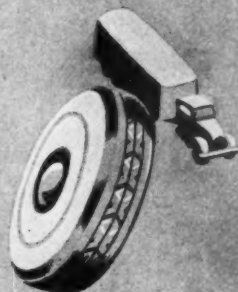
Since 1926, when it pioneered bleached sulphite paper pulp from Western Hemlock, Rayonier has been making scientific history in the interest of its customers.

Through research, the company perfected a rayon pulp from a brand new source of supply — Southern Pine. This opened up a new agricultural and industrial economy in the South.



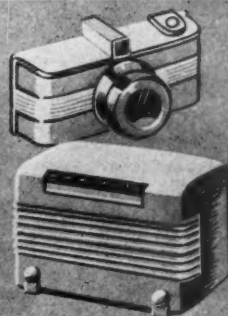
In 1930, the company introduced the first pulp from Western Hemlock for the viscose rayon industry. A dissolving pulp for use in making cellophane followed.

Another Rayonier pulp enabled the manufacture of high tenacity yarns for fire cord, contributing to one of the most outstanding advances made by the rayon industry.



Upsetting precedent, the next product was a pulp for the acetate rayon industry. A cellulose for nitrating purposes also was developed.

Special pulps have been developed also for making photographic papers, certain plastics and other cellulose-base products.



Pioneering requires initiative, vision, confidence and courage — a continuing search for new products and new uses. This is an underlying feature of Rayonier's customer program.

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Stenstrom Returns

D. G. Stenstrom, of Vancouver, B. C., who has been newsprint administrator for the Canadian Wartime Prices and Trade Board in Montreal for the past two years, left that post December 1 and returned to the west coast. He was formerly associated with Pacific Mills, Ltd., at Ocean Falls and Powell River Co.

Birthday Party for Hanny

Annual "Surprise" party in honor of J. E. Hanny, resident manager of Camas, Wash., mill of Crown Zellerbach Corp. was held at the Camas Golf Club on the evening of February 8. The group gathering for the mill manager's birthday included foremen, supervisors, and executive staff.



LLOYD I. RAMSEY, The Adhesive Products Co., who addressed PASC in Los Angeles on Feb. 20.

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Ramsey Discusses Glue Problems Before PASC

While Lloyd I. Ramsey, The Adhesive Products, Inc., titled his talk before the Paper Makers and Associates of Southern California in Los Angeles on Feb. 21 simply "Adhesives," what he actually gave the 40 members and guests were some of the problems and "headaches" of the gluemaker in relationship to the paper and converting industries. The paper was given extemporaneously and evoked a veritable storm of questions which were ably answered by Mr. Ramsey, himself a member of PASC.

Richard S. Buckley, PASC chairman conducted the meeting and was assisted by Dr. Robert G. Baum, secretary, both of Fernstrom Paper Mills, Pomona.

The second portion of the meeting saw S. W. Mikulka, application engineer, General Electric Co. describe construction and performance of gas turbines and jet engines in aircraft.

Chairman Buckley announced a nomination committee to choose the regime which will succeed his own in late spring. This committee consists of Frank Wheelock, Fibreboard Products, Inc.; Lloyd I. Ramsey; J. H. "Jerry" Setinsky, Pioneer-Flintkote Co.; and Allan G. Strang, California-Oregon Paper Mills.

Ernest Dutcher, Pioneer-Flintkote Co., spoke to the members briefly on new stringent "safety" laws which may become a state law.

The meeting was the last opportunity for papers to be submitted in competition for the George M. Cunningham Annual Award, for which the winning paper, submitted by personnel associated with organizations represented by active PASC members on any phase of papermaking, will win \$100. William A. Kinney, Pioneer-Flintkote Co., chairman of the award committee, announced that eight papers had been submitted.

One of the "faithful" at PASC meetings, Frank Wheelock was absent, and rumor had it—one borne out by mysterious passing of cigars—that the Wheelock family had been increased by a boy.

SOLAR BLUES
BRIGHT FAST
UNSURPASSED
FOR TINTING
WHITE PAPER

GENERAL DYESTUFF CORPORATION

REVIEW OF TAPPI PAPERS . . . SULFITE SESSION

(Continued from page 25)

fact that both papers were aided by motion pictures may have increased attendance, the fact remains that the efficient, economical, and speedy barking of pulpwood logs is a subject much on the mind of the industry today. In his discussion of the Hydrobarker, Mr. Holvek pointed out that pulpwood divisions have effected savings up to 20% in the cost of wood by the use of the Hydrobarker.

"Hydraulic barking," he said, "has taken prominence not only through its influence in reduction of the cost of timber, but also, due to its importance in the conservation of timber, substantially increased the potential life of timber reserves." While the barker he described applied mainly to West Coast logs, he made plain that the same principles were being applied to a small log barker now being built. It is apparent that the log barker manufacturers are increasingly tailoring their installations to fit specific mills and conditions. Holvek's paper, and the motion picture which accompanied it, showed the installation at the Soundview Pulp Co., Everett, Wash., which was developed in collaboration with Soundview engineers.

To headline specific papers from the other sessions of the vast TAPPI program would be difficult and perhaps unfair. Certain subjects on the program have had considerable discussion and play prior to 1946 Paper Week, such as peroxide bleaching and wet strength papers.

Future of Sulfite Industry

The sulfite pulping sessions were presided over again this year by George McGregor, a research specialist with Minnesota & Ontario Paper Co., International Falls, Minn., and formerly a mill superintendent on the west coast.

A vision of the future of the sulfite industry in North America was presented by Rex Vincent, technical consultant of Bulkley, Dunton Pulp Co., which was quite in contrast with the gloomy picture which has been painted for sulfite pulp by many of the newly-converted kraft enthusiasts.

Mr. Vincent forecasts increasing uses for sulfite pulps in the purified cellulose industries — rayon, plastics, etc.

Despite the expansion which has

been going on to date in the kraft field, Mr. Vincent analyzed the re-orientation possibilities of the sulfite industry from wider uses of hardwoods such as birch and beech in the east and of white fir, already being extensively used on the Pacific Coast.

He said use of recovery systems in the sulfite industry—at least one of which is expected to show better recovery of chemicals and heat than the sulfate industry — would also greatly alter the picture for sulfite.

Finally, he said, sulfite pulps produced on a new process based on work of the Madison laboratory on holocellulose offer higher yield and high hemicellulose content.

One of the most interesting features of Mr. Vincent's talk was some little known figures he gave on use of sulfite pulp for smokeless powder, rayon and plastics.

He marshalled numerous statistics to show that kraft pulp increases—up to the present—were specialized and therefore, not carrying such bodings of disaster to sulfite as some kraft enthusiasts have been shouting, who use figures less selectively than did Mr. Vincent.

Mr. Vincent did not mention or speculate on the work already achieved in the South in developing improved papers, including bond paper, etc. There are those who say possibilities for kraft are unlimited—and, of course, if that be true, some past figures for kraft and sulfite marshalled in this paper are not too reliable an indication of the future.

On page 50 is a slight condensation of the talk by Mr. Vincent.

The chairman, Mr. McGregor, contributed a paper on washing and screening of sulfite pulps. It follows on page 54.

In this session, Raymond S. Hatch, research director of Weyerhaeuser Timber Co.'s pulp division, discussed the magnesium base system of cooking sulfite pulp which his company is scheduled to inaugurate in a commercial scale plant in the coming year at Longview, Wash. Papers by him have been published in PULP & PAPER INDUSTRY of Nov. 1945 and Jan. 1945, describing the program in detail, explaining how magnesia base will be substituted for the commonly used calcium base, how the liquor will be burned and

the magnesia ash recovered for re-use (his paper published in November is an interesting discourse on the influence of the proposed new system on waste).

Magnesia vs. Ammonium Base

In view of interest in another new rival sulfite cooking system—using ammonium base, Chairman McGregor tried to smoke out a foreign visitor to discuss *Ammonium Base Sulfite Pulping* as a contrast. But Dr. Jacob Dahl, Norwegian pulp and paper executive from the Toten Cellulosefabrik mills and a visitor to western and eastern U. S. mills in February, was a reluctant customer.

He did volunteer that his mill introduced ammonium base process ten years ago and that it was a success. A production of about 25,000 tons of nitrogen per year was reached in prewar years, and with the war the mill, like others, went into production of cellulose fodder for cattle as well as cellulose bases for human food. Dr. Dahl stated that his impression was that quality was as good or better as with the calcium base process used prior to 1936. Added were better physical properties, better yield, savings in steam. The evaporator for the sulfite liquor "works fine," he stated, but they do not evaporate all their liquor. Initially there was a surplus of ammonia. The mill evaporates up to 55% "nicely." The profit from burning they expect to be favorable, particularly as coal in Norway is now \$20.00 per ton. Like many another visitor from across the seas, Dr. Dahl was adroitly evasive under questioning and preferred to have his inquisitors "write the mill."

Spotlighted in the acid pulping sessions were *Sulfite Pulping and Pulps* by Sigge Ekman, Rhineland Paper Co., and *Sulfite Pulp Production Records* by Harold Bialowsky, Pulp Division of Weyerhaeuser Timber Co., and the *Evaluation and Classification of Sulfite Pulps* by Eugene G. Ingalls, Wasau Paper Mills. The latter was a brief discussion of the varied requirements for sulfite pulps. Mr. Bialowsky's paper was presented at a regional meeting on the Pacific Coast previously and published in this magazine.

Protein Feed from Sulfite Waste Liquor

A paper on "Yeast Production in Germany from Sulfite Waste Liquor," describing a standard by-prod-



"SNAPPED" BY OUR CAMERAMAN AT TAPPI SESSIONS (left to right): SIGGE EKMAN, Sulfite Supt., and KARL W. FRIES, Tech. Director, both of Rhinelander Paper Co., who talked on sulfite pulping and hydrating pulp from poplar; R. D. COWHERD, Bristol Co., who gave two papers in Alkaline Pulping Session; F. A. SIMMONDS, U. S. Forest Products Laboratory, co-author of "Semi-Chemical Pulp from Hardwoods"; K. G. CHESLEY, Crossett Industries, Crossett, Ark., who Chairmanned Alkaline Pulping Session, and GEORGE MCGREGOR, Minnesota & Ontario Paper Co., International Falls, Minn., who again was in charge of Acid Pulping Session.

ucts plant of this type developed by the Germans during the war, was presented by Dr. Edward G. Locke, of the Pacific Northwest Experimental Station, U. S. Forest Service, Portland, Ore., which was published in complete form with a number of photographs and drawings in the Jan. 1946 issue of PULP & PAPER INDUSTRY. Dr. Locke's paper is based on his experiences in Europe as an official investigator, and interest in this country has been increased because of promising markets for protein feed for cattle, especially in the sulfite industry region of the Pacific Coast.

Protein Feed from Sulfite Waste Liquor by Robert D. Walker, Jr., and R. A. Morgan, Engineering and Industrial Experiment Station, University of Florida, provoked more than the usual amount of discussion. Two "ghosts" slayed in the discussion was the report that proteins in the feed are destroyed by drying, and that sulfur dioxide is a poison in which yeast will not grow. Experiments at Hammermill apparently have shown that yeast will grow in sulfur dioxide if oxygen is present.

One dissenter in the discussion threw in the epigram that "you can make anything out of sulfite liquor except money." One or two felt definitely that there might be losses in such by-products as feeds, but it appeared that some of the quotations on protein feed have been lower than the actual facts—it is \$100 to \$120 a ton in some areas. It was Dr. Morgen's hope that eventually, as in the packing industry, everything would be used but the squeal.

In discussing alcohol following this paper, it was opined by a speaker that alcohol will always have to be government subsidized in order to be practical as a by-product. He pointed out the instances in Europe and the Scandinavian countries. As for protein feeds, the authors of the paper were careful to add that they were not a national solution to the waste sulfite liquor problem, but rather an idea for examination in specific areas. In New Hampshire (only area outside of Germany

where such tests have been run), cattled showed marked improvement with these feeds.

Continuous Pulp Preparation

Harry Johnson, of Sutherland Refiner Corp., read D. Manson Sutherland's *A Modern Continuous Beating and Refining System*, and Mr. Sutherland's life-long study of fibers was steadily apparent in his discussion of a continuous beating and refining system in which both actions are accomplished in a single unit.

And Midwesterners were attentive toward *Easily Hydrating Pulp from Poplar* by K. W. Fries, Rhinelander Paper Co. Increasing scarcity of spruce and the abundance of poplar in the northern Midwest has led to research on poplar pulp for high density papers. It has been found that easily hydrating pulps can be obtained from pulp by semi-chemical pulping processes. An acid process using calcium as a base shows promise. The neutral sodium sulfite process is applicable for mill scale production.

Dr. Fries participated in the mechanical pulping and pulp purification session, where John N. McGovern, technologist of the pulp and paper division, U. S. Forest Products Laboratory, also participated. Incidentally, his observations of German techniques and new mill equipment were reported in our January issue.

In the graphic arts, session, Vance Vallandigham, chemist, of Kelco Co., presented new inexpensive equipment he has devised for evaluating paper surfaces for printing purposes, which were illustrated and described in our Nov. 1945 issue.

Water Session

At the water purification session, L. L. Klinger, Consolidated Water Power & Paper Co. delivered *Improvements in the Coagulation of Surface Waters with Activated Silica*, which demonstrated that application produced more effective coagulation in both warm and cold water periods. Also, it increases floc size and intensifies floc, reduces the

necessary alum and alkali consumption, and broadens the effective pH range of treatment. Other effects claimed were: increased length of filter runs, the buffing of sudden chemical changes of raw water characteristics, and reduction of the raw water color by at least 90 per cent.

Something for Everybody

Thus a few of the highlights of the greatest TAPPI session in history. But there was literally something for everybody, and—in a sense—there was too much for everybody. R. H. Stevens National Container Corp., and the chairman of the by-products session, summed it up pretty sharply when he told PULP & PAPER INDUSTRY:

"I wouldn't want to try to select the most valuable contributions. But I had a sense of frustration at the impossibility of contacting some of the men I wanted to see."

A sense of frustration is an occupational disease of convention-goers—and 1947 will probably be bigger!

Seabees Pulpwood "Army"

The War Emergency Pulpwood Committee of the industry met at the Waldorf to discuss means of promoting the cutting of wood by farmers and small contractors in the face of a crucial lack of woods labor. It also discussed means of recruiting woods labor to take the place of some 17,000 prisoners of war who are shortly to be returned to Europe.

An organized group of ex-Sea Bees suggested that their group can apply to peacetime pulpwood cutting the machinery and know-how developed in their military careers, and assure themselves of adequate earnings. The group would contract with owners to cut specified quantities of wood to be delivered to mills, would organize camps and operate on a profit sharing basis.

Auld Acquaintance

John R. Dufford, assistant general manager of Paterson Parchment Paper Company, Bristol, Pennsylvania, and Capt. Robert Kuhn, had an interesting session at the annual TAPPI luncheon in New York last month.

They found themselves seated at the same table, and inasmuch as Mr. Dufford was at Edgewood Arsenal in the same outfit as Mr. Kuhn in World War I they found a lot to talk about. Bob Kuhn is being honorably discharged from Edgewood this month and will return to the paper industry.

THE SULFITE PROCESS . . ITS POSITION TODAY

By Rex Vincent

Technical Consultant of Bulkley, Dunton Pulp Co.

Paper presented at Feb. 1946 National TAPPI Convention, New York.

The sulfite process for the delignification of wood has been with us for many years, millions of tons of wood pulp have been produced with it, and, in spite of what the sulfate process adherents say, it will be with us for many more years. The death knell has been sounded by many persons but the patient refuses to die.

One of the prime arguments of the sulfate process adherents is the recent expansion of the sulfate industry. In 1932 the United States produced just over a million tons of sulfate pulps; ten years later nearly five million tons were produced. In that same period sulfite production advanced from 1,145,000 tons to 2,900,000 tons.

Let us examine that expansion of kraft pulps to see where it was consumed for that makes a great deal of difference. In 1944 there was a total production of sulfate pulps of slightly over four and a half million tons. Of this total, 3,150,000 tons were consumed as unbleached kraft in the mills that made the pulp. This pulp then, went into boards, wrapping and bagging papers and sack papers — materials that never have been produced from sulfite pulps. As the development went on it was found that pulps which had been used were, in many cases, too high in quality, and corners were cut which reduced costs and enabled the materials to be offered to a still wider market. The expansion in this way fed upon itself.

There is another part of that total figure which, also, in all fairness, must be examined. In the same year, 1944, there was a production of 865,000 tons of bleached and semi-bleached krafts which was divided into 720,000 tons consumed by the mills which made it and 145,000 tons produced for the market. It is this production which the sulfite process people say is replacing sulfite but notice that it amounts to only 19% of the total kraft production.

But experts say it represents the rate at which sulfite pulps are being replaced. This cannot be shrugged off! It is causing the sulfite people some concern and they are getting ready to do something about it. But it must also be pointed out that this expansion was aided in many respects by the times during which most of it took place. A part of it came about through the shortage of wood pulp caused by the war with the resultant full use of bleaching facilities already installed.

The bleached krafts rushed in to fill the gap caused by the withdrawal of sulfite pulp for others uses.

If we look at domestic sales of pulp perhaps a different view will emerge from the one developed from total production figures. Market sales by American producers of sulfite pulps rose from about 400,000 tons in 1935 to 1,228,000 in 1941, and then fell to 943,000 tons in 1944. Up to 1941 the ratio of expansion was 3.07 and if calculated up to 1944 the ratio becomes 2.3. This ratio of 3.07 compares rather well with the one for kraft over nearly the same period which was 4.7. Breaking these figures down into the bleached and unbleached components, we find that unbleached sulfite rose from 82,000 to 460,000 in the period 1935-1941 which gives an expansion ratio of 5.6, higher even than the kraft expansion for that period. Bleached paper grades went from 257,000 to 571,000 or a ratio of 2.2, but note that this refers only to paper grades of bleached sulfite. Since 1941 both these categories have declined in production and the expansion ratio as calculated from 1935 to 1944 would be 2.3 for unbleached sulfite and 1.3 for bleached. This production decline has been due almost entirely to conditions caused by the war and in no way reflects any decrease in facilities for producing these pulps. In market sales of sulfite, the figures are very similar to those for totally produced sulfate as they rise from only 8,000 tons in 1935 to 377,000 tons in 1944 which is an expansion ratio of 47, but here it must be pointed out that this increase in domestic sales of sulfate was made possible by the shutting off of imports and by the diversion of integrated pulp into the market by the allocation program. Market sales of bleached sulfate have shown a very remarkable rise as they were only 1,500 tons in 1935, 75,000 in 1940 and 99,000 in 1944. This parallels the expansion of totally produced bleached sulfate which increased considerably during the war years.

The rated capacity for all these pulps reached their peak in 1943 and have been declining since then. The

increase in kraft capacity has been terrific since 1937, practically doubling in the seven years to 1944, while sulfite capacity changed very little. There has been a considerable conversion from unbleached sulfite to bleached which is shown by the greater decrease in unbleached production than in bleached without a corresponding decrease in total capacity. The market pulp figures do not indicate as positive a shift as do the total pulp statistics and this emphasizes the conclusion that most of the kraft expansion has been made for integrated production. This point is further shown by comparing the market sales of sulfite and sulfate. In 1939 there was twice as much sulfite sold as sulfate, but in 1943, in spite of the terrific expansion of sulfate pulps, there was two and a half times as much sulfite sold. There is no escaping the conclusion that integrated production is shifting away from the sulfite process and this is due fundamentally to the development of the bleached sulfate grades. In market sales, sulfite, although faced with a rapidly expanding kraft usage, is holding its own.

There remains now for examination, the imported pulp figures and here again statistics present a problem for they simply do not exist after 1940. Unbleached sulfite has shown a remarkable steadiness in the imports. The only year it deviated widely from this figure was in 1939 when it rose to 919,000 tons. Bleached sulfite rose slowly up to 1940 and then barely held to 350,000 tons as Canada tried to make up what was lost by the war. In short, the figures on imported pulps show very little change in the over-all pattern. In unbleached kraft the same thing is evident — a steady importation of about 430,000 tons a year that broke out in 1936 and 1937 when it went above 600,000 tons. The bleached kraft imports, however, started rising in 1930 when they were 21,000 tons and by 1937 they were up to 111,000 tons.

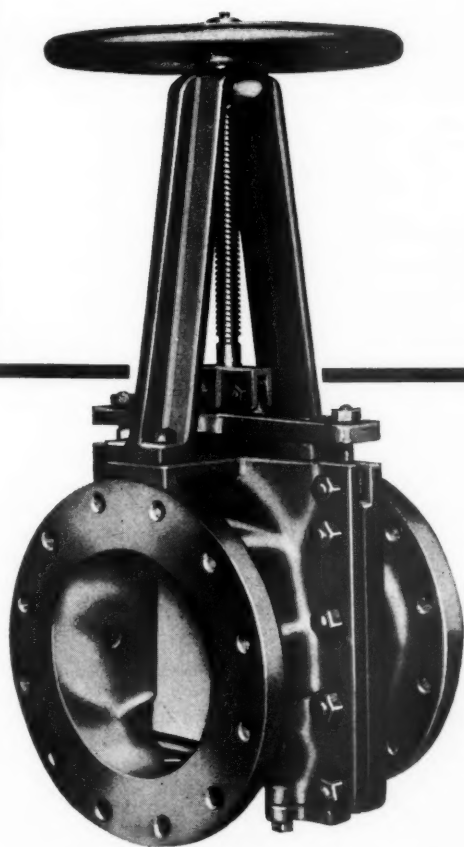
We know there is an increased capacity in Sweden for bleached and semi-bleached krafts but there has also been an increase in capacity for bleached and dissolving grades of sulfite. The most significant change in the Swedish pulp industry has been the increase in dissolving pulp capacity which has now reached nearly 600,000 tons and all

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this is based on the sulfite process.

It is true that the small integrated mill, based on the sulfite process, has a problem, but the problem finds its base in wood rather than in the process. In the larger, newer units, which are backed by satisfactory timber reserves, there is no inclination to abandon the process and there is an excellent chance that the use of the process will be expanded, although perhaps not for paper.

One of the reasons for the acute shortage of pulp during the war as the large quantity diverted to the manufacture of smokeless powder. At the peak of this consumption, wood pulp was being used at the rate of almost 60,000 tons per quarter. It is a large slice of the entire market production of bleached sulfite in the United States. Thus, there is a field for wood pulp where the sulfite process is, today, unchallenged — the so-called dissolving uses where pulp is used as a chemical raw material and not as a building material.

Rayon and Plastics Uses

By far the largest consumer of refined cellulose is the rayon industry, all produced by sulfite process. In 1932 rayon used 43,000 tons of wood pulp. In 1942 they used 280,000 tons which gives an expansion ratio of 6.5. During that time wood pulp increased from 60% to 85% of the raw material used. The production of the industry has been increasing at the rate of about 30,000 tons per year since 1938 and expansions are still going on. These expansions affect pulp very directly and they are not only expansions in capacity but in the use of wood pulp. Up to 1939 the acetate process was practically exclusively using cotton linters but today nearly all acetate for rayon is made from wood pulp with cotton linter pulp being used only for very special purposes or to fill in the gap. Somewhere in the balance between price and requirements, this rayon expansion will stop but it is felt that there will soon be a demand from this industry approaching 350,000 tons annually.

Cellophane is closely linked to rayon because of the similarity of the processes and also because of its rate of growth which has paralleled that of rayon. This material is currently consuming about 60,000 tons of sulfite pulp per year and expansions are underway which will raise that figure to almost 90,

000 tons. For comparison, this is almost as much pulp as is consumed by the glassine and greaseproof papers. The cellophane people are aggressive and by means of improvements in their process, such as continuous steeping, they hope to bring the material, on a square foot basis, even with waxed paper. In other words, a dollar will provide just as many square yards of cellophane as waxed paper. Cellophane and other similar materials are likely to take over the tough wrapping jobs such as machine parts.

Nitrocellulose should come next in these considerations as it is one of the oldest plastic base materials known. Many authorities in the plastics field have been predicting that this material is on the way out but actualities prove them wrong for its production is increasing and in the near future it will be consuming as much as 35,000 tons annually.

There are many other uses and derivatives that are using wood pulp either directly or as a source of cellulose. The urea-formaldehyde resins employ it as a filler, it is used directly in medical absorbents and sanitary napkins, it is a raw material for methyl and ethyl cellulose and to some extent for the acetate molding powders. All these will require about 70,000 tons per year and this, with the major uses spoken of, totals up to approximately 550,000 tons. Any pulp of this type which is exported will increase this figure. Let us take a round figure of 600,000 tons which assumes an exportation less than that before the war and see what this amounts to.

First, it exceeds the current North American capacity for this type of wood pulp. Secondly, it amounts to about 20% of the total sulfite capacity and about 33% of the bleached sulfite capacity. If those demands are met from North American supply sources, some mills now making sulfite for paper will be making the dissolving grades or new mills will be built—probably both. The market mills can switch from paper to refined cellulose gradually without losing much time and are apt to do just that as prices for these grades move upward.

Wood Species and Recovery

The integrated sulfite mill has different and more difficult problems. First, there is the problem of wood supply which has been mentioned previously and this is receiving a great deal of attention. There are no clear figures to show just how

much hardwood is being cooked by the sulfite process today, but we know it is increasing and, thanks to the Forest Products Laboratories, will probably increase in the future at a faster rate. The same approach is being used on the West Coast where they are cooking more and more white fir and where they are extending the limits of their timber reserves through the use of hydraulic barking and whole log chipping. Thus, while it may not be possible to completely eliminate the wood problem for sulfite, the reserves of spruce and hardwood can be extended considerably.

A second method of solving the integrated mill's problem is through recovery of chemicals and utilization of the fuel value of the waste products. Two of these systems are the magnesium and ammonium base systems. Pilot plant work, on the magnesium base at least, indicates a better recovery of chemicals and heat than can be obtained in the sulfate recovery systems. There is an additional method which has had considerable success in Sweden and that is the system for evaporation of calcium base liquor. This system has been worked out for the typical Swedish mill of from 80 to 100 tons per day and it is claimed that a mill of that size can almost be balanced out for fuel. In units of larger size there is a complication resulting from the ash, the disposal of which is a major problem.

There is still a third approach which is not as advanced as the recovery systems and that is the process indicated by the Forest Products Laboratory's work on holocellulose. This process is a variation of the analytical method for the isolation of holocellulose which is the entire carbohydrate fraction of wood. Pulps produced by this method possess high hemicellulose contents and by virtue of that have some very interesting properties. The yield is much higher than that obtained by the usual sulfite process and estimates of costs, as made by the Laboratory, are within the range of commercial practice.

These things will not be neglected, economic pressures will not permit them to be, and they will bring new life to a process which is far from death. The demands on the sulfite pulps from the purified cellulose industries will be a further spur and you can rest assured that sulfite pulps are going to be around a long, long time.



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SULFITE PULPS . . HANDLING AND TREATING AFTER DIGESTER

Washing and screening operations represent an exceedingly important factor in the manufacture of a uniform, high quality unbleached sulfite pulp. Any special effort expended in the planning, layout, operation, maintenance, control, and modernization of these departments will be readily reflected in quality and production of product.

At nominal installation, operation and maintenance cost, residual sulfur dioxide and/or heat, may be recovered at the blow pits, resulting in appreciable savings. It has been estimated that with a free SO_2 test at the blow of 0.25 to 0.50% or 0.75%, a savings of 14.9 to 29.8 to 44.7 pounds of sulfur per ton of pulp, may be realized. At 137°C. maximum cooking temperature and average normal operating conditions, approximately 1,500,000 B.t.u. of heat are available per ton of pulp at the blow. A few commercial installations with a single vomit stack, lend themselves readily to recovery of SO_2 and heat.

Thorough washing of unbleached sulfite pulp will assist screening operations through the elimination of foaming, will save chlorine in the bleach plant, minimize pitch problems in the screen room and on the paper machine. The quality, quantity, and method of distribution of wash water are related to the efficiency of washing. Reports indicate a water consumption of 4,000 to 12,000 gallons per ton used for blow pit washing. Wood pulp serves as an excellent filter to remove suspended and colloidal contaminants. Improvements in materials of construction have resulted in increased production, lower maintenance costs, and better quality product. The use of an auxiliary vacuum type filter washer after the blow pits has decided benefits. An 8-foot diameter by 12 foot face washer would handle 100 to 150 tons of pulp per day. A blending chest for pulps from various cooks assists in the preparation of a uniform quality product. Normal variations in chlorine demand, and attendant physical and chemical quality differences are balanced by blending the major portion of at least three cooks.

Flat type knotter screens with high frequency vibrating equipment are proving efficient and economical. Horsepower, space requirements, maintenance, and labor costs on knotter screens is usually quite low.

By George H. McGregor

Research Dept., Minnesota & Ontario Paper Co., International Falls, Minn.

Condensation of paper presented before National TAPPI Acid Pulping Session, New York, Feb. 1946. He was Chairman of the Session.

Production rates through flat type knotter screens will vary from 2.5 to 4.0 tons per plate per day. Knotter screen rejects can be disintegrated in a hammer mill, blended with fine screen tailings, further refined and converted to various types of board or wrapper stock.

Rifflers, if properly designed and operated to best suit local conditions, are efficient and economical means of assisting in the cleaning of unbleached sulfite pulp. Riffler floors may be either wood, concrete, or covered with long nap cotton felt or used wooden felt from paper machines. An efficient riffler is one that operates at an approximate flow depth of 6 to 8 inches, with a velocity of 1 foot per second, and pulp consistency of 0.30 to 0.35%. Usual operations vary somewhat from these conditions.

The introduction of chromium plated, and chrome nickel screen plates, studies of hydraulic principles, and screen vat and vibrating mechanism improvements, insure high production rates, good quality, at low unit cost. Average production rate for high quality pulp on flat screens will approximate 0.40 to 0.45 tons per plate per day. A reasonable power figure for flat screen operation would be 0.6 installed horsepower per ton of pulp.

A submerged type photo-electric cell arrangement with suitable light source and sensitive element has been successfully adapted to control of riffler and fine screen operation. Such equipment is very accurate to 0.5% consistency.

Power requirements for a system of knotters, rifflers, flat fine screens, deckers, and white water pumping operations in an unbleached sulfite mill would approximate 2.75 installed horsepower per ton. If blow pit operation is included a reasonable figure would be 3.00 installed horsepower per ton.

In general washing and cleaning operations represent a very low percentage of the cost of production of unbleached sulphite pulp, yet they represent a very vital factor in the

quality of product produced, therefore, due consideration should be given to type of equipment, space requirements, operation, maintenance, control, and modernization

Stream Improvement Meeting In West April 18

Russell L. Winget, executive secretary, and Dr. Harry Gehm, technical director, of the National Council for Stream Improvement, Inc., will head west in April. They will be in Chicago April 4 and hold their Pacific Coast meeting with industry leaders in Portland, Ore., April 18.

Huyck Movie Has Its Premiere

An outstanding motion picture, much of it in technicolor, had its world premiere at the TAPPI luncheon during Paper Week at the Commodore Hotel in New York City late in February. It is "Paper—Pacemaker of Progress" and will be seen throughout the U. S. at other technical gatherings this year.

The film is produced by F. C. Huyck & Sons, Albany, New York, and received a fine ovation at its first showing. Its historical aspects were supervised by Dard Hunter, internationally known authority and curator of the Paper Museum at the Massachusetts Institute of Technology. The film was produced with the cooperation of the Franklin Institute, the Metropolitan Museum, and many leading paper manufacturers. The more than 1400 in attendance at the annual TAPPI luncheon were unanimous in their approval of the production.

Vickery of E. D. Jones Tours Coast Mills

C. H. Vickery, vice president of E. D. Jones & Sons Co., of Pittsfield, Mass., manufacturers of beaters and other paper mill machinery, spent three weeks touring mills of California, Oregon, and Washington in February.

Saunders Is Gen. Supt. At Sydney Roofing-Paper Co.

A. J. Saunders has been appointed general superintendent of Sydney Roofing & Paper Co., Victoria, B. C., succeeding M. Thom, who is no longer associated with the company.

Prior to receiving his latest appointment, Mr. Saunders was resident engineer—a position he held for 19 years.

Sydney Roofing & Paper Co. is engaged in an expansion program. A \$33,000 concrete building to house equipment of the groundwood mill is now under construction. It will provide much needed storage space for raw material. The mill will enable the company to use slush pulp to a considerable extent. In the past all groundwood used has been in laps.

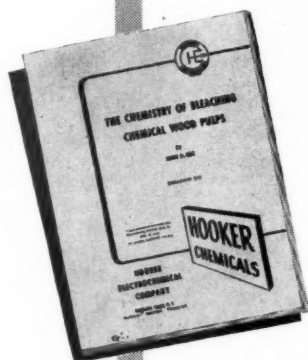
A new \$150,000 roofing plant is being built at the site of the present groundwood mill to increase the company's output. The present building will be used for storage and shipping.

Knowing Why—Helps Make Whiter and Stronger Pulps

Through an understanding of the composition of the pulps and of the chemical reactions by which the coloring matter and other undesired components may be removed, the technique of producing whiter and stronger pulps has been advanced. Hooker Bulletin 211 "The Chemistry of Bleaching Chemical Wood Pulps" explains the reactions involved in the bleaching of chemical wood pulps.

SOME OF THE SECTION HEADINGS ARE:

- I. *Changes in composition as wood substance is progressively purified.*
- II. *Chemical properties of chlorine in relation to process of bleaching.*
- III. *Single stage Hypochlorite bleaching.*
- IV. *Multi-stage bleaching.*
- V. *Chlorination.*
- VI. *Alkaline treatment of chlorinated pulps.*
- VII. *Reactions with hypochlorite.*



Diagrams, graphs and equations help to make this Bulletin interesting and valuable. A copy will be sent you when requested on your letterhead.

Other Bulletins prepared by our Technical Staff are equally informative and instructive. All are published with the aim of improving processes, effecting economies and raising quality. Send for the list of Hooker Pulp and Paper Bulletins.

Hooker chemists have been cooperating with the pulp and paper industry for years. Many of the advances in pulp and paper making are the results of this cooperative research. That's why Hooker knows, as do you, the importance of high quality chemicals. And that's why you can put your trust in the consistent high quality of every shipment of Hooker Chlorine, Caustic Soda, and other Hooker Chemicals.

HOOKER ELECTROCHEMICAL COMPANY

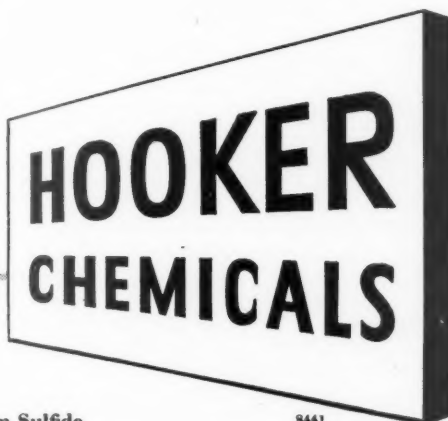
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Caustic Soda

Chlorine

Muriatic Acid

Sodium Sulfide

8441

March 1946

PULP & PAPER INDUSTRY

55



RUSSELL J. LEROUX (left), and ED DAHL, of Rhinelander Paper Co., Rhinelander, Wis., "snapped" by PULP & PAPER INDUSTRY between meetings they were attending during Paper Week in New York. Mr. LeRoux, former manager of one of the Weyerhaeuser pulp mills on the West Coast and long an executive with Consolidated Water Power & Paper Co., is now Assistant to President Folke Becker of Rhinelander.

CUNEO PRESS BUYS COMBINED LOCKS

Cuneo Press, of Chicago, 3300 Sheridan Rd., one of the largest printing establishments in the world, has stepped into the paper industry actively with the purchase of the Combined Locks Paper Co., a Wisconsin corporation, by Combined Paper Co. of Delaware.

The mill is located in the town of Combined Locks, Wis., and manufactures lightweight book and printing papers. Its daily capacities: 60 tons of groundwood; 140 tons of paper.

The announcement of the sale came from Appleton and stated that the principals of the Delaware corporation are John F. Cuneo, president of Cuneo Press, and the New York investment firm of Hemphill, Noyes & Co. Raymond P. Fischer, Chicago, will be president.

Magazines and a number of other publications are published by Cuneo Press. Six other U. S. mills have recently been acquired by magazine publishers to assure their paper supply.

Puget Sound Pulpwood Inventories

Dramatically showing why three pulp and paper mills have been temporarily shut down in Washington and Oregon, while others are on 5-day weeks or otherwise forced to curtail operation are recently released figures on log inventories.

Last month, in these columns, it was reported that the Soundview Pulp Co., Kraft Pulp Division of St. Regis Paper Co., Anacortes Division of Coos Bay Pulp Corp. (Scott Paper Co.) and the Puget Sound Pulp & Timber Co. had reduced operations. Now Oregon mills are also being hard hit. This was principally because of heavy snow in their logging lands; which, because of heavy trucks in use, the steep grades and the frequent thaws, is a handicap to

Seamans Purchase Paper Mill

Following a growing trend within the industry toward more and more self-contained operations, the Seaman Paper Co., of Chicago, this month assumed active control of a paper mill at Otter River, Mass., formerly owned by the New England Pulp and Paper Co. A program aimed at total rehabilitation and conversion of the mill is now underway, D. R. Seaman, president, told PULP AND PAPER INDUSTRY.

The Massachusetts mill was purchased a short time ago. The mill is powered by steam and electricity and has one 84-inch Fourdrinier machine. Plans for the mill's future include addition of a pulp refiner, changes in the power plant, and installation of a ventilation system designed and supplied by Ross Engineering Corp., New York.

Although major changes in the equipment of the plant must wait upon release of materials and machinery now unavailable on regular markets, Mr. Seaman indicated that as rapidly as possible the Otter River mill will be converted to the production of manifold. For the present, however, capacity and type of output will remain essentially unchanged. Chief current output consists of coarse paper types.

With retained equipment widest trimmed sheets will be 72 inches. The mill, which was in full production when taken over, was previously manufactured lightweight specialties, tissues, waxing, manifold foil, napkins and towels. The plant is expected to continue a maximum daily output of a little over 12 tons of paper.

logging in the Far West.

The log inventories of pulp species on Puget Sound had dropped off to only 85,145,000 bd. ft. on Feb. 1. This compared with 124,570,000 bd. ft. on Feb. 1, 1945, and 122,000,000 ft. on Feb. 1, 1944.

It had fallen off from around 100,000,000 ft. at the end of 1945, indicating the result of the heavy snowstorms in the foothills of the Cascades, where many of the operations are located, which had virtually halted all logging in that area since late October.

An improvement in weather recently has given hope that production may soon be increased; but it will take many weeks to recover losses.

Laboratory Moved

The laboratory of the Seaman Paper Co. has been moved to the Otter River location where it will be operated in conjunction with the newly-acquired mill. Albert Yraola, Seaman chief chemist, has been on deck at the mill since shortly after transfer of title to supervise the relocation of the chemical laboratory.

The mill was formally taken over on March 1. However, overall planning for the new operation, under the direction of George D. Jones, manager in charge of all operations for Seaman Paper Co., was underway during February.

"The mill was purchased to supply our own needs and we do not expect to place paper produced there directly on the market," Mr. Seaman stated. He indicated that all arrangements for a supply of raw pulp and materials for currently necessary installations have been made. With conditioned optimism he referred to plans for future full conversion of the plant for production of manifold after removal of obstacles in the way of procurement of machinery and supplies.

The Otter River mill will be under the direction of the Seaman officers, headed by D. R. Seaman, president, his brother, Clayton Seaman, and son, Joseph Seaman, vice presidents. Louis Springer is secretary of the company and A. J. Drusch, treasurer.

Urges Farmers Not To Cut Pulpwood

Ceiling prices for pulpwood announced by OPA as of Jan. 20 have been criticized by Tom Linder, commissioner of agriculture of Georgia, who has urged cotton farmers not to cut pulpwood at a \$5.65 differential under northern states.

Linder says the cheap pulpwood means low priced paper containers to compete with cotton so that the farmer is beating down his own prices.

Ceiling prices announced by OPA are on the per cord basis, F.O.B. cars or equivalent figure. They are:

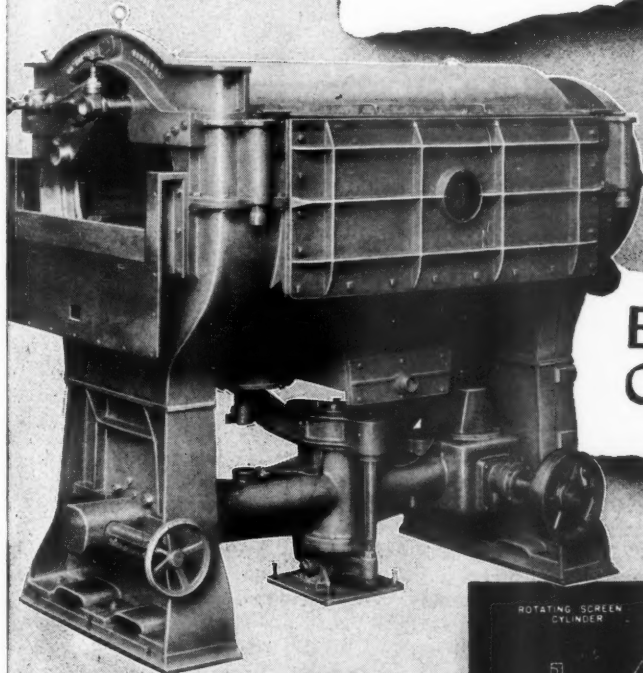
State	Pine Pulpwood	Hardwood Pulpwood
Alabama	\$ 7.60	\$ 8.10
Florida	7.60	8.10
Georgia	7.60	8.10
South Carolina	7.60	8.10
Tennessee	7.60	8.10
Louisiana (East)	7.60	8.10
Louisiana (West)	8.35	8.80
Arkansas	8.35	8.80
Texas	8.35	8.80
Maine	12.75	13.75
Minnesota	12.75	10.00
Michigan	12.75	10.00
Wisconsin	12.75	10.00
New Hampshire	13.25	14.75
Vermont (part)	13.25	13.50
Vermont (part)	13.25	14.75

Gentle Screening Action
Correct Stock Agitation

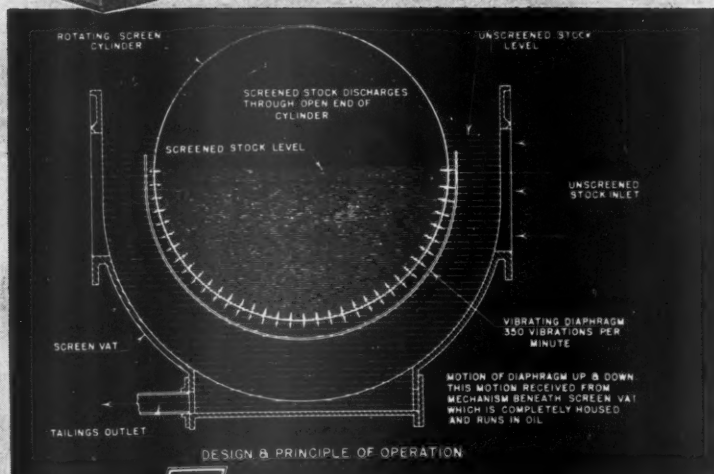
Eliminates Dirt and
Lumps from Stock

Passes Uniform
Fibres...
Perfectly Mixed

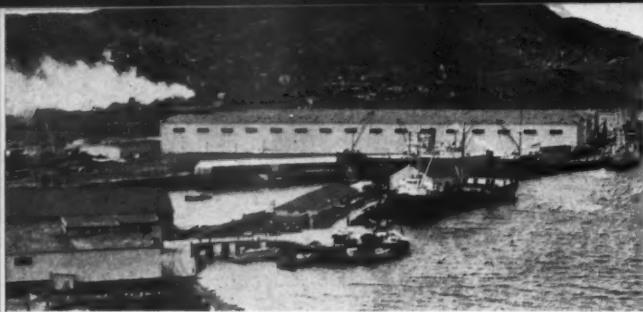
Easily Cleaned...
Completely Accessible



The
**JONES
SCREEN**



Jones
E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of Quality Machinery for Paper Mills



Bowater's Newfoundland Pulp and Paper Mills Limited, Newfoundland. (Left): View of Paper Sheds and Wharves. (Right): General View of Plant.

NEWFOUNDLAND'S PULP AND PAPER INDUSTRY

Now that the war is over, Newfoundland's pulp and paper industry has increased its production substantially, and further improvements are anticipated.

Lack of men has been a handicap during the war years, especially in woods operations. Another difficulty was transportation. Because of its insular location, Newfoundland has been dependent on deep sea vessels and during the submarine menace there was a continuing problem of arranging deliveries.

From a low point of 236,000 tons production, Newfoundland's output has increased to 272,799 tons in 1944, and 1945 should show a sharp increase. Before the war, production was well above 350,000 tons.

The two major operators in Newfoundland are Bowater's Newfoundland Pulp & Paper Mills, Ltd., formerly International Power & Paper Co. of Newfoundland, and Anglo-Newfoundland Development Co. The former operates properties at Corner Brook, Anglo-Newfoundland at Grand Falls.

Both these companies in recent years have given increasing attention to developing new lines other than newsprint. Bowater's, for instance, has become an important producer of sulphite pulp. Anglo-Newfoundland now produces news-

print, dry-baled sulphite, dry-baled groundwood, lapped groundwood and wrappers of various quality, while a comparatively recent venture has been production of corrugated materials.

Both major companies have shown active interest in development of motor roads into the forest, a considerable advantage in getting out pulpwood. Bowater's Newfoundland Pulp & Paper Mills came all the way to the west coast for trucks to solve a complicated overland transportation problem necessitated by the wartime difficulty of obtaining ocean-going tugs to transport pulpwood from wood camps to the mill.

Two representatives of the Bowater's organization came to the west coast last spring to see for themselves how pulp and paper and lumber companies handled their logs. They were Harry Miller, woods superintendent, and Fred Hynes, works mechanic.

The company purchased a fleet of Hayes trucks, manufactured by Hayes Manufacturing Co., Vancouver, B. C., some of them powered by 212 h. p. diesel engines, to haul loads of 22 cords over rough country. As proof of their satisfactory performance, this fleet has recently been augmented.

Newsprint production on New-

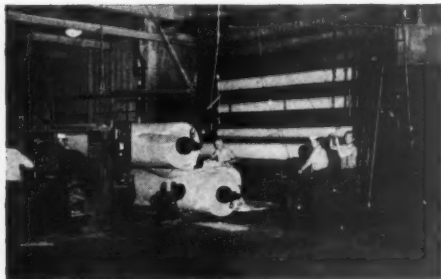
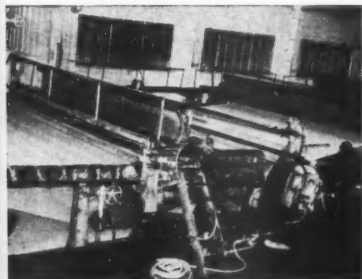
foundland in the first eight months of this year rose to 217,579 tons from 173,946 tons in the corresponding period of 1944 and 139,632 tons in the 1943 period, while shipments rose to 214,569 tons from 160,570 tons and 163,149 tons. In the first eight months of the pre-war year 1939, Newfoundland newsprint production totalled 194,529 tons and shipments 172,447 tons.

A large part of Newfoundland's newsprint output before the war went to the United Kingdom and other overseas points. War conditions, however, resulted in a switch of more of the island's output to the United States market. Of late, however, shipments have resumed their usual trend to some extent and the United Kingdom, where the Newfoundland mills are financially controlled, has been receiving a larger proportion of the production.

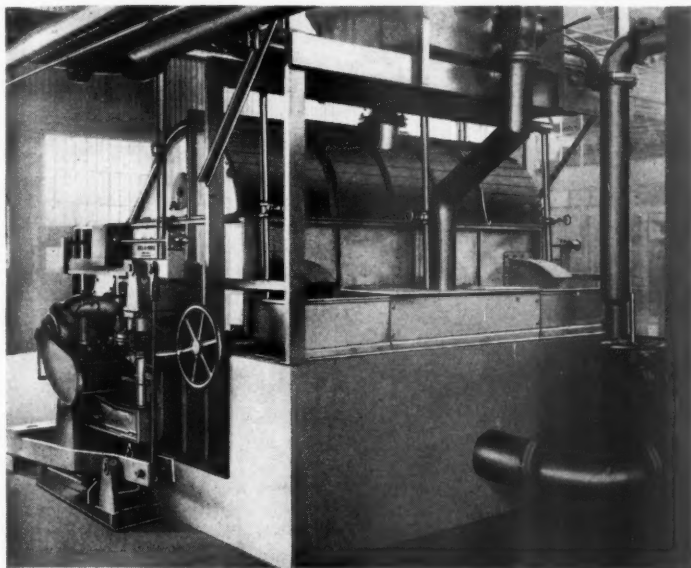
In 1939, only 87,334 tons of Newfoundland newsprint went to the United States; in 1941 they had increased to 217,233 tons. In 1943 they totalled 131,031 tons, in 1944, 100,035 tons. In the first eight months of 1945 they had totalled 70,657 tons. Shipments overseas in 1939 were 175,557 tons, in 1941 they were down to 128,993 tons, in 1943 they were up to 131,833 tons and in 1944 totalled 169,734 tons. In the first eight months of 1945 they were 143,098 tons, or twice as much as had been shipped to the United States.

One reason Newfoundland shipments a few years ago increased overseas to a greater extent than Canadian overseas tonnage was an arrangement arising from difficulties experienced by Newfoundland mills in shipping to southern United States markets. Canadian newsprint mills served that territory by rail, while Newfoundland took over more

234 Inch Paper Machine in Bowater's Newfoundland Pulp & Paper Mills Limited. (Left): Wet End. (Right): Dry End.



The ROLL-O-FINER



Typical installation view of Roll-O-Finer in U. S. Mill

Positive fibre treatment by a continuous recycling of stock.

Positive control of roll pressure.

Handles free stock at high consistency.

Production rate determined by treatment required.

Basalt Lava stone treatment ideal for high strength development.

Suitable for treatment of fibre for insulating board stock.

Especially adapted for treatment of screenings.

Design provides for low submergence load with resultant low H. P.

Bedplate accessibility.

Furnished in single or multiple units in series.

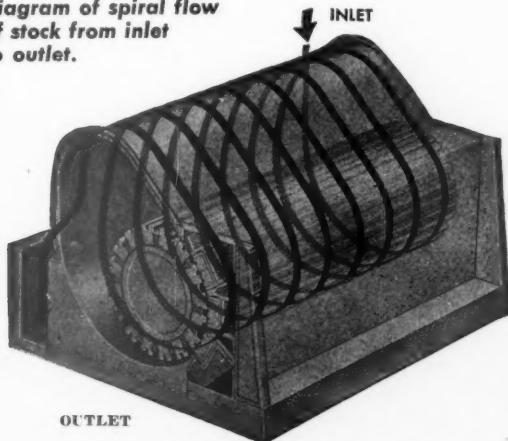
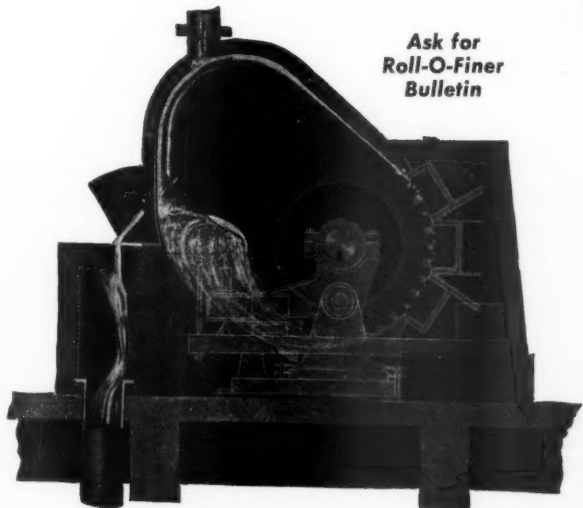
Compact, rugged construction.

Size of refiner roll: 48 inches diameter x 96 inch face.



Ask for
Roll-O-Finer
Bulletin

Diagram of spiral flow
of stock from inlet
to outlet.

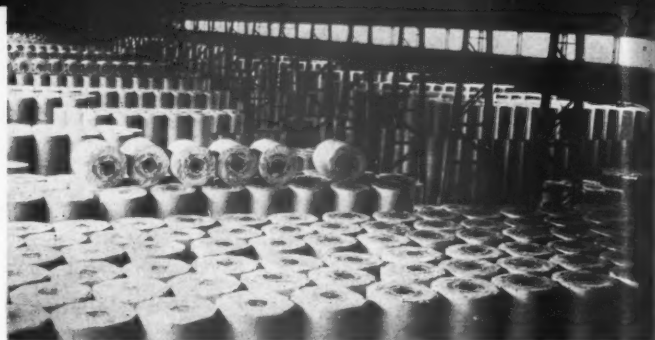


U. S. Patent No. 2,360,854 — Mexico 43,184. Canada, Great Britain and Sweden pending.

PAPER and INDUSTRIAL APPLIANCES, INC.
122 EAST 42nd STREET
NEW YORK, N. Y.



Log Pond and Wood Storage Piles



One of the Large Storage Warehouses

of the overseas business. This helped to conserve shipping space and time owing to Newfoundland's comparative proximity to Europe.

Anglo-Newfoundland Development Co. is controlled by the Rothermere interests and before the war shipped large quantities of newsprint to the London Daily Mail and associated newspapers. It has a 25-year contract with Associated Newspapers, Ltd., to supply all of that company's newsprint requirements up to January 1, 1958, although wartime shipping difficulties curtailed deliveries to some extent.

Bowater's Newfoundland Pulp & Paper Mills is the largest enterprise of its kind on the island. Sales are made in part through Bowater's Paper Co., Inc., a wholly owned subsidiary of Bowater's Paper Mills, Ltd. Up to the close of 1941 the company's production was marketed in nearly all European countries, but wartime conditions necessitated a diversion of some of the output to North American markets.

Late in 1944 the company issued \$2,500,000 of its 4 per cent first

mortgage bonds, mostly to investors in Newfoundland—the first time an issue of this magnitude has been underwritten there.

The Bowater's paper mill at Corner Brook was opened and began newsprint manufacture in 1925, since which time many refinements and improvements to facilities have been made. The rated capacity of the mill is now 665 tons of newsprint per day. Four large machines, originally designed to operate at 800 feet per second, are at the present time doing close to 1200 feet per second. A fifth smaller machine operates at an average speed of approximately 835 feet per second.

During recent years large sums of money have been spent in order to improve paper quality and to increase manufacturing efficiency. Improvements to the electric drives on the paper machines, such as the installation of voltage regulators and larger couch motors, have allowed a speeding up on the machines. Drying capacity has been increased through improved ventilation and the addition of booster fans on the dryer felts.

The original groundwood mill contained 18 continuous grinders. The present grinder room contains 29 Waterous and Warren continuous grinders and the groundwood screen room has 28 Waterous deckers and 5 Oliver vacuum filters. Five Haug refiners have been installed during recent years to reduce waste and two more are on order. Improved quality of pulp and consistency control have had a large bearing on the increased operating efficiencies and higher speeds of the paper machines.

New mixing machines have been provided, as well as more efficient layouts for color, alum and clay mixing.

To take care of the increased production and the larger number of rolls required for the various overseas customers, it was necessary to provide an extension to the finishing room.

A new sulphite mill, planned before the outbreak of war in 1939,

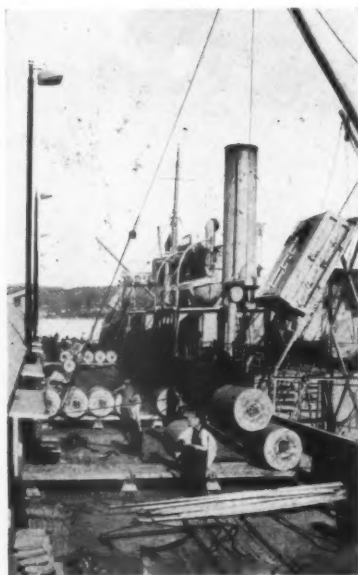
was completed at the end of March, 1941. Since production started in 1941, the sulphite mill has been temporarily shut down for several months, in each year, due to shortage of pulpwood. It is, however, currently running at well over its originally designed capacity and is producing an average of about 130 tons of sulphite per day. A large part of the equipment and materials for the sulphite mill were manufactured in England and delivered after the war began, yet not a "nut or bolt" was lost through enemy action.

The Corner Brook pulp and paper mills are supplied with hydroelectric power from the company's Deer Lake development 31 miles away. The power station has an installed generator capacity of 150,000 h. p. The plant operates with a gross head of over 260 feet in a single stage development. The nine penstocks, which carry the water from the forebay to the power house, are each approximately 3900 feet long.

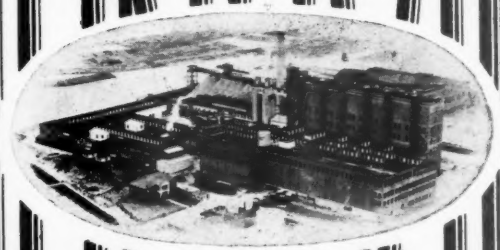
Practically the entire production of the Corner Brook mills is sea-borne to markets in all parts of the world. Consequently, very extensive shipping and storage facilities have been built up around the mills to handle the large tonnage involved. The harbor has excellent facilities for loading ocean-going vessels, including those owned by the company and specially designed for the transportation of newsprint and wood pulp. As the port is closed by ice for a period between January and April, the output of the mills at this season is either railed to Port-aux-Basques 140 miles distant, or stored until the port is opened in the early spring. With recent extensions to the main mill wharves, these now have a continuous water frontage of almost 2200 feet. The wharves are connected by rail to the main line of the Newfoundland Government Railway. Cargo handled inward and outward, combined, exceeds half a million tons annually for the port of Corner Brook.

Widespread interest has been

Loading Newsprint Aboard Ship



SOUNDVIEW

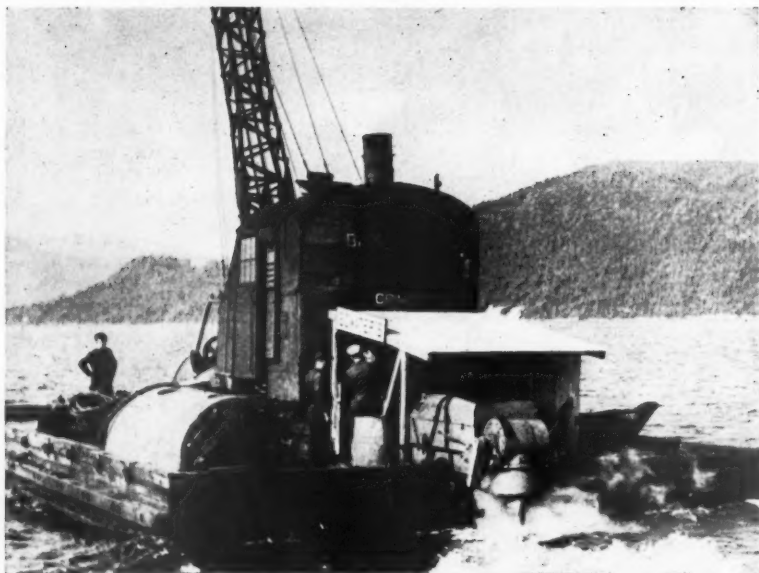


High Grade

**BLEACHED
SULPHITE PULP**

SOUNDVIEW PULP COMPANY
EVERETT • WASHINGTON





ORIGINALLY DESIGNED FOR THE U. S. NAVY, the Murray & Tregurtha "Harbormaster," a propelling and steering apparatus is shown here on a work barge of the Bowater's Newfoundland Pulp & Paper Mills, Ltd. Installed without radical alteration of various types of craft used in pulp and paper industry, it provides power, maneuverability—ability to move log booms and other huge loads in shallow water. In applications for Bowater's, the results show 100% increase in work delivered as compared with former methods. Murray & Tregurtha is at Quincy, Mass.

aroused recently by proposals for the further development of the harbor at Corner Brook, under which the company's wharves situated outside the mill property would be made available as a public wharf, and to provide additional terminal facilities.

The timber limits owned and leased by the company cover an area of over 7,000,000 acres, or 11,000 square miles, estimated to contain approximately 20,000,000 cords of pulpwood.

Forest working plans are based on logging the distant areas with those which are more accessible, so as to obtain reasonably uniform costs over a long period of time. These plans also provide for cutting as much over-mature forest as possible in order to avoid future loss, as well as to stabilize the labor supply by broadening the geographical distribution of each season's cut.

Bowater's reports operating profit before depreciation, depletion and interest amounting to \$2,568,946 for year 1944. This was an increase of \$441,598 over 1943 and the best reported since \$3,031,671 shown for 1941. Net profit was \$711,508 compared with \$248,355. After depreciation, balance available for interest from operating profit was \$1,725,785 compared with \$1,579,543.

Net working capital was shown at \$8,358,242 an increase of \$625,125 over the previous year-end.

For 1944 the company reported that full operation of the newsprint mill was found possible but that the sulphite mill was maintained only at partial capacity. Costs continued to rise, principally on account of wage increases. On the other hand, there was some reduction in the costs of transportation and some improvement in the shipping situation which latter had been very tight for a number of years past.

On January 1, 1945, balance of first mortgage 5% bonds series 1940, was redeemed at 103 and replaced by an issue of \$2,500,000 of 4% bonds, series 1945. Balance sheet at December 31, 1944, showed the former bonds outstanding to an amount of 2,322,500. This refunding will result in a further saving in annual interest charges.

Gaylord Mill to Get Access to Gulf Ports

Signing of the deficiency appropriation bill by President Truman at the end of the year has provided \$1,573,500 for completion of the construction of a canal and improvement works for the Pearl river, which serves as the border between Mississippi and Louisiana. The work is under the U. S. District Engineer at Mobile, Ala.

Completion of the project will provide inland waterway navigation between Bogalusa, La., and all points on the Intracoastal Canal, including the harbor at New Orleans. The Gaylord Container Corp.'s large paper mill is located in Bogalusa.

B. C. Government Kills Forest Commission Idea

Although Chief Justice Gordon Sloan, acting as a commissioner investigating all phases of the forest situation in British Columbia, recommended that administration of the forest be turned over to an independent commission, the provincial government has declined to adopt this advice.

Instead, management of the forests will continue to be directly under the minister of lands and forests and his department.

Commissioner Sloan had recommended commission form of administration so as to guarantee continuity of policy and sufficient allocation of funds to meet expenditures required in maintaining the province's forests on a sustained yield basis.

British Columbia's pulp and paper industry had welcomed Sloan's recommendation and strongly supported it, and for that reason was disappointed by the government's failure to implement it, presumably because the government did not wish to lose control over such an important revenue-producing department.

Many other less revolutionary suggestions in the Sloan report will probably be adopted.

One of them was that the government should go to court to test validity of a proposed severance tax on timber cut in the Esquimalt & Nanaimo Railway belt, one of the wealthiest forest areas on Vancouver Island.

Appoints Mead Sales

Bloedel, Stewart & Welch Limited, Vancouver, B. C., announce the appointment of The Mead Sales Company as their exclusive agents for the sale in the United States of the product of their new unbleached sulphate pulp mill, to be established at Port Alberni, B. C.

The mill is being planned throughout for the production of the highest quality Northern Kraft for sale to mills which will convert it into top grade specialty papers. It will be located adjacent to the company's sawmill at Port Alberni and will have a daily production of 165 tons of kraft pulp. Plans for the project have been drawn by Howard A. Simons, consulting engineer, who has now established his headquarters in Vancouver.

The entry of Bloedel, Stewart & Welch into the pulp industry will mark another step forward in the development of this progressive firm. The company commenced operations as loggers in 1911 and have steadily expanded until today they are firmly established and recognized as one of the leading logging, lumber and shingle operators in British Columbia.

Present indications are that the mill will be in operation some time during the early part of 1947.

Root Returns To Dilts Staff

E. M. Root, who served as a U. S. Navy lieutenant during the war on both the Atlantic and Pacific "frontiers", has resumed his former position as sales engineer for the Dilts Division, Shartle Bros.-Black-Clawson Co.-Dilts Co., and has resumed residence in Fulton, N. Y.

He spent terminal leave in Portland, Ore., where Mrs. Root had been staying with her family while he was at sea.



PIONEER

OF THE WOOD PULP INDUSTRY IN THE PUGET
SOUND AREA, WHERE ONE-THIRD OF THE NATION'S
DOMESTIC SUPPLY OF SULPHITE AND ONE-FIFTH
OF ITS TOTAL WOOD PULP SUPPLY IS PRODUCED
ANNUAL CAPACITY 135,000 TONS

PUGET SOUND PULP & TIMBER CO.

Bellingham, Washington

SOME PRACTICAL ASPECTS OF DOUGLAS FIR PULPING

During the years of war just past the attention of those engaged in the alkaline pulping industry on the Pacific Coast became focused on the use of Douglas fir as a source of paper and paperboard fibre. The critical needs of the war effort required that all logs suitable for lumber, whether they were of species commonly used for pulpwood or not, be diverted to the sawmills. Meanwhile labor for logging became scarce, demand for paper products increased, and our European sources of wood pulps were cut off. All this left the pulp mills facing a greatly increased demand for their products with a greatly decreased supply of the wood species preferred for pulping. The resultant log shortage could be alleviated only by use of the cull Douglas fir logs in the kraft mills. Since the lumber demand has not diminished with the end of hostilities, this situation is still with us and may not improve for some time.

Even after the log supply has increased it will be advantageous to continue the use of Douglas fir for pulping because the specie has qualities desirable in some grades of paper, and because its use relieves the necessity for leaving the cull logs in the forests or using them for fuel as was done in the past; moreover of great importance in respect to the timber resources of the Pacific Northwest, the increased use of specie will augment the supply of pulpwood and contribute to a better balanced forestry program.

Wood Quality

Douglas fir is primarily a lumber specie. Enormous quantities of saw-mill wastes and low grade logs have been available ever since the lumber industry has been important in this region. The paper industry has not utilized this potential supply because certain wood and pulp properties have not seemed as suited to paper manufacture as those from the other species, especially hemlock, white fir and spruce. The main reason has been this: Douglas fir has, by every experience in pulping the wood, yielded a "low" bursting strength pulp, compared to, say, hemlock. Incidentally, also the alkaline pulpers have shied away from its foaming troubles in handling it. Incidentally, also Douglas fir has never been successfully pulped by the calcium base sulphite process.

Paper Entered in Shibley Contest 1945-6

Presented at Meeting of Pacific Coast Section of TAPPI at Camas, Washington, October 9, 1945, by Peter M. Wilkie, Technical Department, Camas Mill Division, Crown Zellerbach Corp.

The quality of Douglas fir logs supplied to the pulp mills varies from sound second growth to old growth logs containing up to 50% decayed wood, the sources being thinnings from young forests, over-ripe old growth, and logs which are too "rough" to be used for lumber.

The density of sound Douglas fir averages around 28 pounds of dry wood per cubic foot of green volume. This is higher than the other pulpwoods which vary from 22-27 pounds per cubic foot, depending on species. However, the various types of Douglas fir have widely different densities. Young second growth is usually about 26 pounds per cubic foot and the decayed wood ranges down as low as 20 pounds.

Aside from spruce, Douglas fir is the only resinous species in the coastal regions of the Pacific Northwest. Pitch often occurs in amounts sufficient to cause foaming troubles in a system designed for hemlock.

Moisture content is low, reflecting a large percentage of heartwood

and the waterproofing action of the pitch, which factors minimize water absorption during the transportation and storage of rafts.

Cooking

The cooking requirements of Douglas fir chips are similar to those of hemlock. Actually, Douglas fir cooks somewhat easier than hemlock when an equivalent chemical charge is used on the basis of dry wood weight. However, due to its higher density, the charge of chemical per unit of digester volume must be equal to or slightly greater than used for hemlock.

Experimentally determined pulp yields from Douglas fir vary according to the grade of wood used. Second growth gives the most pulp with yields of 44 to 46 per cent of screened fibre on the basis of dry wood. Sound old growth yields only 41 to 43 per cent. Decayed wood yields only 38 to 40 per cent. This is compared to hemlock yields of 43 to 45 per cent. The loss in yield with decay on the basis of dry wood substance remaining is surprisingly small. However, the mill production per digester drops sharply with decay since less wood substance of this less dense wood can be placed in the digester. In the extreme case the combination of these two factors may cause a loss of one-third of the digester yield.

Effect of Washing and Recovery

Foam, caused by soaps formed by the action of the cooking liquor on resin, may upset the washer operation by sealing the pulp mat with tiny bubbles and preventing the wash water from passing through properly. In this respect Douglas fir is unique among woods of the Pacific Northwest; however, in comparison with other even more resinous woods, such as Southern pine, the foam trouble caused by Douglas fir might be classed as moderate. This trouble has been controlled by removing as many sources of agitation as possible from the washing system so that the liquor is washed



PETER M. WILKIE, Technical Dept., Camas, Wash. Mill of Crown Zellerbach Corp., who presented a paper on Aspects of Douglas Fir Pulping in the Shibley award contest at the Pacific Section meeting of TAPPI Oct. 9th, at Camas, Wash.

out before the soaps are subjected to enough whipping action to cause serious foaming.

Kraft pulp in the Camas Mill is washed on vacuum washers in two stages. Formerly the washers were arranged two in a series with reslushing of the washer cake between stages. This reslushing and pumping between the stages whipped air into the filtrate causing serious foaming on the secondary drum. In order to control this foaming condition the washers were rearranged in parallel and two stages of a countercurrent washing were installed on each drum.

When foaming trouble is reduced Douglas fir has an advantage over other species since the low moisture content of the wood results in a more concentrated black liquor, giving the operator the choice between a lighter evaporator load or better washing by the use of more wash water.

Black liquor from Douglas fir contains more solids per ton of pulp produced than does that from woods commonly cooked in the past; namely, hemlock, white fir and spruce. In addition, the solids have a slightly higher heat of combustion. This results in more steam production per ton of pulp from the waste heat boiler.

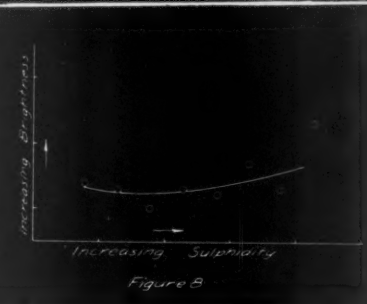
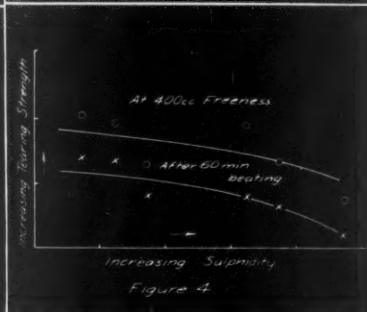
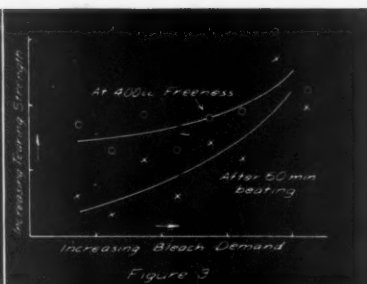
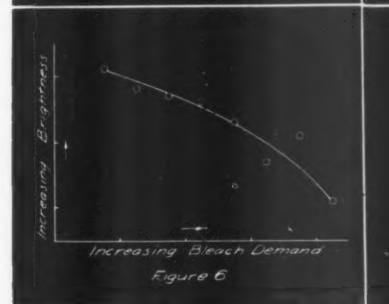
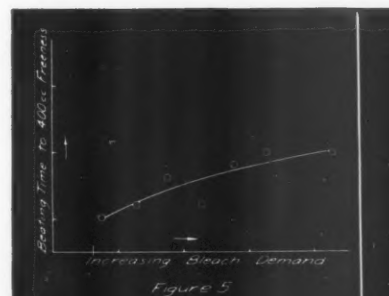
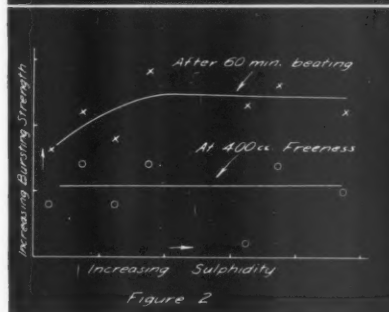
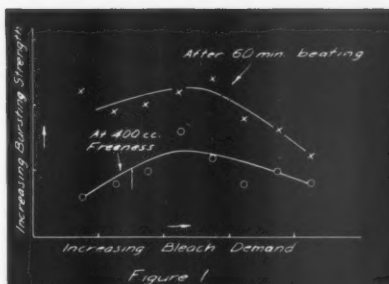
Pulp and Paper Characteristics

Douglas fir pulp has long fibres as is generally characteristic of western woods, but the fibres are coarser than average. Fibre measurements comparing Douglas fir to hemlock show respective average lengths of 3.9 and 4.2 millimeters and average diameters of 44 and 40 microns. Bursting strength is lower than in other pulps from western softwoods, but tear resistance is unexcelled. For comparison, if hemlock pulp is taken as standard and assigned a value of 100%, the various grades of Douglas fir would be about as follows:

	Strength	Resistance
Hemlock	100%	100%
Second Growth		
Douglas fir.....	80%	130%
Sound Old Growth		
Douglas fir.....	70%	150%
Decayed Douglas fir	65%	120%

As indicated by the table, second growth is the grade of Douglas fir pulp having the most desirable strength qualities, but the loss in strength in decayed wood is surprisingly small.

The beating rate is slow in the upper range of freeness but increases rapidly on further treatment necessitating more critical control of

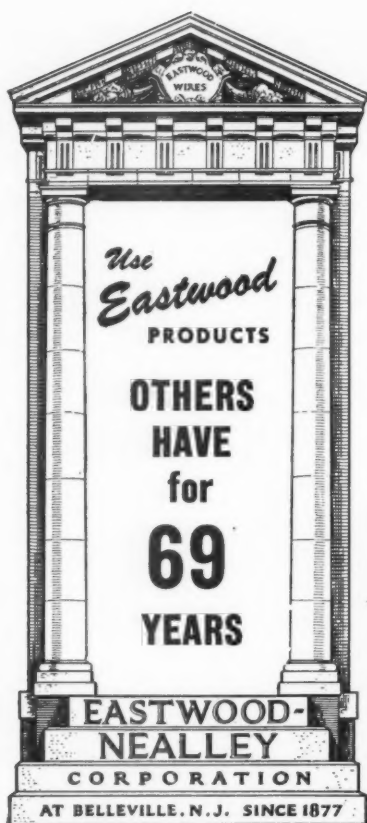


stock preparation in mill beaters and refiners. The stock forms and drains well on the machine wire, and dries easily. The resulting paper is dark and dull in appearance with relatively low mullen strength, high tearing strength, high porosity, a rougher surface, and a tendency toward brittleness in converting.

From all considerations presently known, physical, chemical as well as practical, Douglas fir appears to be deficient in the inherent fibre-cementing constituent which makes bursting strength in a sheet of pa-

per, or its fibre-cementing material is difficult to develop. Conversely, the tear strength is, probably on the same account, admirable.

The future of Douglas fir pulp depends to a large degree on what can be done by the industry to improve its deficiencies in bursting strength and color. Perhaps, in due time, fundamental research will bring forth a practical solution for the problem; meanwhile, the individual mills must determine pulping procedures and methods of using the



pulp which are suitable to their own equipment and requirements and will produce optimum quality.

Pulping Variables

Pulping variables when taken separately and varied within reasonable limits in a mill may show possibilities for minor improvements in the pulp which, when taken as a whole, will noticeably improve the product. The common variables in pulping are: wood quality, chemical charge, time to raise pressure, time at pressure, maximum temperature, concentration, activity and sulphidity of the cooking liquor, and the final bleach demand of the pulp.

At Camas Mill, since no two rafts of Douglas fir are alike and since it is difficult to judge the quality of the logs by their external appearance, close quality control on the wood is both difficult and impractical. Chemical charge is fixed within narrow limits by the capacity of the recovery system, while maximum temperatures and time to raise pressure are more or less fixed by production demands. Liquor strength and activity are limited by crystallization and settling problems in the liquor room and storage system. Time at pressure may be varied

somewhat in order to control the bleach demand of the pulp, while sulphidity may be varied over a fairly wide range by altering the amount of sulphur added along with the chemical make-up going to the furnace. Hence, process limitations leave only two significant variables to be adjusted in this mill to produce optimum pulp quality; namely, sulphidity and bleach demand.

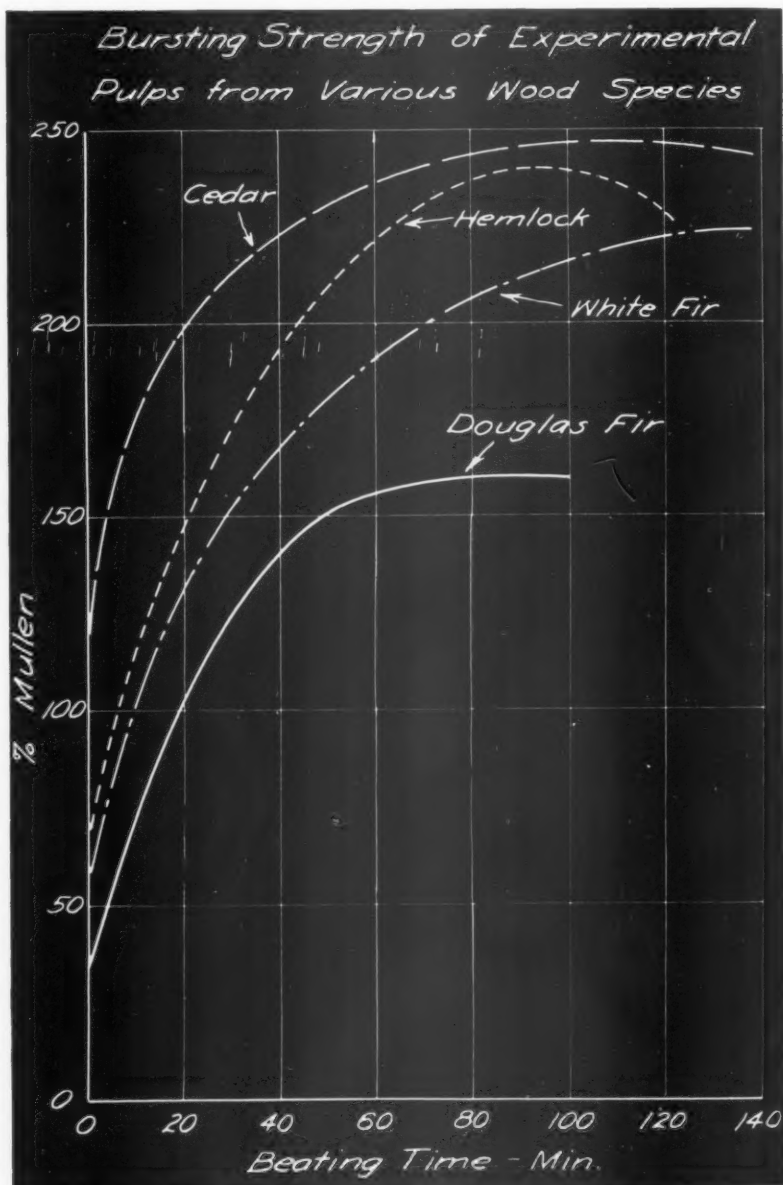
Data covering these variables and the pulp quality factors, bursting strength, tear resistance, and G. E. brightness, were collected from daily laboratory beater tests over a period of several months. The quality data were grouped and averaged for small increments of sulphidity and bleach demand. The averages were

then plotted against the pulping variables to determine what trends if any existed.

Bursting Strength

Bursting strength was plotted against bleach demand at a fixed beating time of 60 minutes, and also at a fixed Canadian Standard Freeness of 400 cubic centimeters (Figure 1). The curves show that there is a definite degree of delignification at which maximum bursting strength is attained with moderate losses in strength on each side of the maximum.

Sulphidity, which is defined as the per cent of the total titratable Na_2O which exists as sodium sulphide, has



long been known to benefit pulp strength. In plotting per cent sulphidity against bursting strength, no large variations were noted (Figure 2). However, a slight drop in strength was indicated near the lower end of the sulphidity range under observation.

From these curves it is learned that at the Camas Mill bursting strength can be helped by uniformly cooking to the bleach demand corresponding to the maximum observed and by maintaining the sulphidity at or above the average value experienced during this period of observation. Similar values can probably be established at other mills.

Tearing Strength and Refining Power

Tearing strength showed a definite drop with decreasing bleach demand but increased with decreasing sulphidity (Figures 3 and 4). This increase, coupled with the lower bursting strength already observed, means that more mechanical stock treatment will be required to obtain a given strength development when pulp is cooked at lower sulphidities. Figure 5 shows the relationship between hardness of pulp and beating rate in the laboratory beater. Less time and hence less power are used to produce the same freeness in pulp having lower bleach demand.

Color

The color of the pulp improved definitely with decreasing bleach demand (Figure 6). A difference of several points in G. E. brightness was obtained within the relatively narrow range of hardness under consideration. Still greater delignification is known to give further improvement in color.

G. E. brightness was also plotted against soda loss and sulphidity, but no definite trends appeared within the range of data available (Figures 7 and 8), although an increase in brightness at higher sulphidities was indicated.

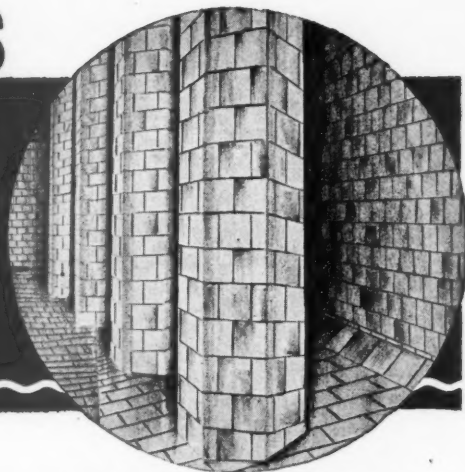
Discussion

The curves just discussed serve the mill by showing what can be done in the pulping process to help emphasize a particular property in the paper. For instance, if bursting strength is to be emphasized, cooking to the optimum bleach demand with high sulphidity will help; if extremely high tearing strength is desired a hard pulp cooked with less sulphidity may be used; or if higher brightness is required a softer pulp is indicated. These curves may not be valid for conditions existing in

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other mills, although similar data can easily be accumulated to prepare this sort of guide for cooking Douglas fir.

Methods of Improving Douglas Fir Products

Other methods for improving the quality of products from Douglas fir pulp have been used with more or less success. Some of these are: mixing in species such as hemlock and cedar, known to have higher bursting strengths, with the Douglas fir somewhere in the processing; readjusting or redesigning the refining equipment to better suit the peculiarities of the Douglas fir fibre; adding adhesives or binders to the paper machine furnish in order to help the bursting strength of the paper; and bleaching slightly with sodium bisulphite, sulphur dioxide, or hypochlorite to improve color.

Summary

Douglas fir pulp with its tendency toward low bursting strength which is determined by the properties of the wood itself has been classed as a low grade pulp because of partiality of the paper industry toward bursting strength, and its excellent tearing resistance has been ignored. It is not unreasonable to assume

that, as the trend towards fitting the properties of paper sheets more precisely to their particular uses gathers momentum, the opinion regarding Douglas fir pulp will rise in like proportion. Then too, it is certain that the intensity of work being done on this specie both in the mill and in the laboratory will improve the papermaking qualities of the pulp. However, since any pulping process is purely subtractive, it will be impossible to raise the strength above that which is inherent in the wood. In this connection it is interesting to recall the story of Western hemlock.

In the beginning pulp from hemlock was considered to be of extremely poor quality because it did not work up into good paper by methods applied to woods and pulps at that time. Later, when mills learned how to handle it, it was found to be one of the best species available.

Douglas fir has already established itself as a pulpwood. Its high tearing strength is worth a premium in some grades of paper. It seems inevitable that ways will be found to minimize its defects so that Douglas fir pulp may be elevated from the position of "black sheep" to become one of the high quality grades of papermaking fibre.

LITERATURE AVAILABLE TO YOU

E. I. DU PONT DE NEMOURS & CO., Rubber Chemicals Div., Wilmington, Del., publishes "Neoprene Notebook" giving facts about Neoprene uses for engineers.

LINK-BELT CO., 307 No. Michigan, Chicago, describes in Folder 2041 a new free-rolling conveyor trolley which has no wheel shafts or spindles. Basic elements are wheel and one-piece bracket which themselves form inner and outer races of bearing.

SWENSON EVAPORATOR CO. (Div. of Whiting Corp.), Harvey, Ill., offers new revised 52-page booklet "Heat Transfer and Crystallization" by G. E. Seavoy and Dr. W. L. Badger, covering basic principles of heat transfer, evaporator types and theory and practice of crystallization.

DOWNINGTON MANUF. CO., Downingtown, Pa., has issued Catalog No. 1145, describing and illustrating uses of the Downington suction felt rolls.

WESTINGHOUSE ELECTRIC CORP., Pittsburgh, have issued booklet entitled "Engineering Highlights" which describes and illustrates their engineering developments of recent years which they consider important. There are chapters on electronics, new materials, generation, gas turbines and jet propulsion and uses of electric power.

TECHNICAL SECTION, CANADIAN PULP & PAPER ASSN., 3420 University St., Montreal (2), Que.—a book, "Factors Contributing to Sulfite Pulp Cleanliness," Price, \$5 in U. S. and Canada, \$6 elsewhere. Questionnaires on control of dirt, flat screen operation and woodroom practice were sent to numerous mills and replies compiled, summarized, etc.

AMERICAN FOREST PRODUCTS INDUSTRIES, INC., 1319 18th St. N. W., Washington 6, D. C., offers free a booklet entitled "The First Business in America" with 29 pages of statistical and other information on forests and forest products.

Classified Advertising

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New Steam Plant For Westminster Mill

Specifications for a new \$190,000 steam generating plant are being prepared for Westminster Paper Co., at New Westminster, B. C., by W. O. Stevens, 1700 Textile Tower, Seattle, consulting engineer, according to announcement by President Elmer Herb.

Mr. Herb said that the steel-frame steam plant will be in addition to the \$1,500,000 expansion program already authorized.

The steam plant will have a capacity of 40,000 pounds of steam with a pressure of 600 pounds. It will include modern equipment for drying paper in the new paper converting plant.

Barrie on Tour

O. S. "Red" Barrie, Western division sales manager, Oxford Paper Co., with offices in Chicago, was a recent visitor to the major Blake Moffitt & Towne Co. divisions.

WANTED: Chemical Engineer with sulphite pulping and bleaching experience for Pacific Coast Mill. Reply Box 24, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

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The following issues of Pacific Pulp & Paper Industry are needed to complete our files: June 1933 and June 1937. Anyone wishing to sell these numbers, please communicate with Box No. 26, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

Pulp Shipped By Water Again

After more than four years, water borne pulp shipments from Pulp Division, Weyerhaeuser Timber Co., Longview, Wash., to the east coast were resumed in mid-January. The freighter Andarko Victory, a Weyerhaeuser owned vessel, loaded 1200 tons of high grade pulp for eastern manufacturers of book paper, beginning January 14.

Shortage of vessels and the threat of submarines during the war necessitated rail shipment throughout the entire period.

P-G Official in Sweden

S. G. Blankinship, a director and vice president of Perkins-Goodwin Co., 30 Rockefeller Plaza, New York, left by plane in February for Sweden for a first-hand survey of conditions in the industry there.

Provincial Paper Co. Plans Big Investment

A. G. Pounsford, general manager of Provincial Paper Co., Port Arthur, says that a substantial investment will soon be made by his company in the installation of machinery for production of book and magazine paper.

Work has already started on installation of a side-coating machine which will be in operation late this year. The company plans to get out of coarser grade paper production altogether, and the new program will probably mean a pretty drastic revamping of the whole production setup at Port Arthur.

The new process will mean additional employment at the company's mill on Lake Superior, but it will not increase the woods operations greatly.

William Soles Tours Pacific Coast Mills

William Soles, recently appointed mill manager of the Anglo-Canadian Pulp & Paper Mills, Ltd., of Quebec City, toured a number of Pacific Coast mills from Powell River to the Columbia River accompanied by C. W. "Hap" Felt, assistant to Dan Charles, 1331 Third Ave. Bldg., Seattle, Canadian and Pacific Coast representative of several supply companies.

Mr. Felt, who recently joined Mr. Charles, served four years in the army in Europe and Alaska. Among companies they represent is Wisconsin Wire Works, Appleton, Wis.

Powell River Adds To Timber Holdings

Powell River Co. added extensively to its timber holdings when it acquired from Canada's War Assets Corp. some 350,000,000 feet of standing timber, together with modern camp buildings, logging railroads and truck roads, rafting gear and general equipment.

The property had previously been held in the name of and operated by Canada's Aero Timber Products, Ltd., the government's agency headed by R. J. Filberg, general manager of Comox Logging Co., for expediting production of airplane grade timber in B. C. War Assets Corp. is the agency charged with the responsibility for disposing of surplus war materials.

Most of the timber involved in the deal, which represented an outlay of nearly \$1,000,000, is located in Masset Inlet on the Queen Charlotte Islands. The camp and equipment, however, is mostly at Cumsheewa, near timber already owned and under development by Powell River Co.

Definite plans for the utilization of the timber on this newly acquired tract have not yet been made, but they will tie in with Powell River Co.'s long-term program, and it is understood that the company's intention is to establish and maintain a sustained yield policy.

Most of the timber prior to its sale to Aero Timber Products had been held by the Shevlin-Carpenter-Clark interests in Minneapolis.

New Chip Bin

B. C. Pulp & Paper Co. has installed a new concrete three-tower chip bin at Port Alice, B. C.

The bin, installed by Dominion Construction Co., has a capacity of 24 "cooks."



PAPER MILL AND TECHNICAL LABORATORY supervisory positions were reorganized recently at the Crown Zellerbach mill in Camas, Wash., with a view toward closer teamwork and efficiency. Under the new set-up, these men are the executives and their titles indicate their responsibilities:

Top (left to right): GUS OSTENSON, Paper Mill Supt., ART NEWCOMB and GUS LORENZ, Assistant Superintendents, and (at extreme right), FRANCIS W. FLYNN, Assistant Technical Supervisor, who recently returned from serving as Lieutenant in U. S. Navy.

Lower row (left to right): GEORGE GALLOWAY, former Technical Supervisor and now Technical Assistant to the Paper Mill Supt.; C. C. JACOBY, Technical Supervisor, and H. H. WYMORE, Asst. Tech. Supervisor.

Mr. Flynn, most recent appointee in this group, was Assistant Engineering Officer, U.S.S. Charger, CVE 30, and later taught at Midshipman's School, Columbia University, New York. He is graduate of University of Minnesota.

Sundry Opinions on Swedish Pulp Aired at Paper Week

In the rush and heat of Paper Week there were members of the industry who stopped still to face a fact: nobody was really coming to grip with the problem of pulp supply—and the crux of the problem was prices.

There was a definitely strong feeling among most company executives present that OPA should lift at least some price ceilings.

The Swedish mills were still hanging tough, but there were those in the U. S. who thought they might yet soften their attitude. A definite trend toward more integration in the U. S. industry is already apparent, these observers point out, and the Swedes, they say, would not be anxious to hasten and enlarge this trend. Also the suggestion was made by at least one prominent executive at Paper Week that if the Swedes held off too long, Russia might capture its U. S. pulp market. Optimists believe the Swedish mills will finally ship what they can, at least in unbleached sulfite and unbleached kraft.

Others were not so sure. Some who have been close to the picture question whether price alone will bring more Swedish pulp. They reason

that lack of coal and chemicals could hardly be improved by a higher price. They point out that already Sweden is receiving more than 75,000 tons of coal per month from the U. S. and that almost none of it reaches pulp mills.

This being the case, the more pessimistic say, we may not expect much from Sweden, new price or no. Some leaders are beginning to wonder if the industry is not wasting time in dealing with OPA, are thinking that perhaps there will have to be still more education in Congress—and even in the State Department. Well informed sources in Washington indicate that in the State Department the government of Sweden is not nearly as high on the priority list as it was, while Finland has risen greatly. The reason, these sources say, is due in part to the reluctance of Sweden to tell all about German investments and bank deposits there.

Some at Paper Week said they believe that Swedish mills do not need a higher price. Labor costs are certainly much lower than here—as much as 50% lower in some of the wood industries.

A meeting of OPA with importers

and a few U. S. pulp consumers in Washington late in February got nowhere. Critics pointed out that the representatives of Swedish mills brought more doggedness than facts, and that U. S. pulp consuming mills were not truly represented.

Less Swedish Pulp

Contrary to recent reports, it is now understood the Swedish pulp companies have not actually cancelled any U. S. mills order but will hold off deliveries in many cases in the hope of obtaining OPA price concessions.

Only 22,000 tons arrived at U. S. ports between Feb. 7-21.

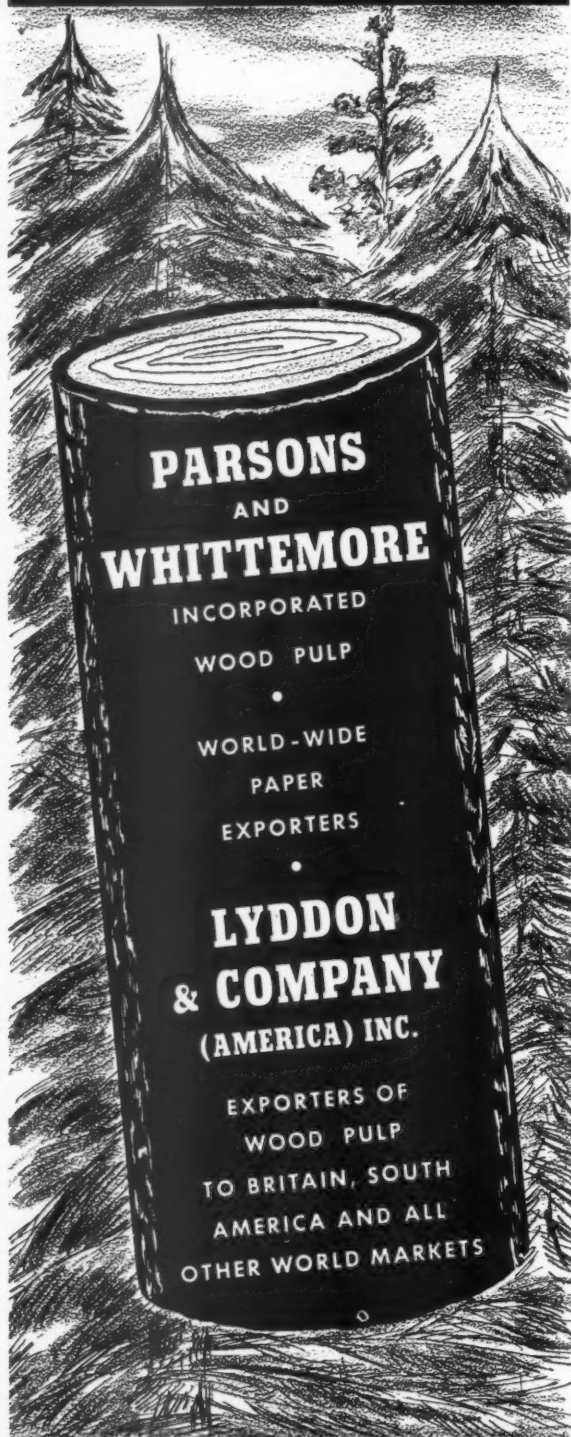
IMPORTS OF SWEDISH PULP

(V-E Day Through Feb. 21, 1946—First postwar shipment was June 25)

	Short Tons	Value Dollars
Unbleached groundwood.....	32,197	\$1,206,138
Bleached groundwood	1,177	43,098
Unbleached sulfite	342,285	21,157,700
Bleached sulfite, rayon and special grades	4,140	354,484
Other bleached sulfite.....	62,596	4,652,190
Unbleached sulfate	371,938	22,574,630
Bleached sulfate	29,941	2,172,721
All soda pulp	39	2,119
Unclassified	1,886	99,218

Total (in 8 months of shipping).....846,199 \$52,262,298
Data supplied by the U. S. Bureau of the Census.

PULP AND PAPER



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Bagasse Pulp Possibilities (Continued from page 34)

Plant Operation

The cooking of bagasse for the preparation of pulp depends upon a number of factors, namely, pressure, temperature, time of cooking, concentration of the chemical, and the proportion of the various chemicals in the cook. The best conditions for any chemical cook must be determined by experimental work in which all these factors are varied. Bagasse has been reduced to pulp by the sulfite process, the soda process, the sulfate process, chlorine, and nitric acid. Bagasse, when subjected to all these processes by various investigators, has produced a series of excellent pulps.

The smallest economical size plant for a pulp mill is 50 tons per day of 24 hours operation. This will require 210-225 tons of bagasse, 48% fiber and not over 50% moisture. Average bagasse analysis will run 46-48% fiber, 48-50% moisture and 2-3% sucrose.

The pulp mill will have to be operated at least 300 days per year, and to supply the mill during the out-of-sugar crop season, about 60-70% of the bagasse will have to be baled and stored. The cost of baling and storing bagasse will be about \$1.00-\$1.50 per ton wet, so that the average baling and storing cost of all the bagasse may be assumed to be 70c-\$1.00 per ton wet. The price of substitute fuel, storing and baling therefore fixes the value of the raw material for the manufacture of pulp. The fuel value of one ton of wet bagasse, considering its lower efficiency, is equivalent to 1.18 bbls. of oil.

Due to the cost of handling the bagasse, it would be desirable that the pulp plant be located adjacent to a reasonably large size sugar factory. However, the availability of a good supply of water should receive primary consideration. A large amount of clean water (20,000 to 50,000 gallons per ton pulp) is required for washing bagasse and also for processing and washing pulp.

The conversion cost of one ton of wet lap pulp on dry basis would be as follows:

Steam, Power and Water.....	\$ 8.75
Chemicals	4.75
Labor and Superintendence.....	5.60
Maintenance80

Total Conversion Cost.....\$19.90

It is estimated that a plant for producing 50 tons of wet lap pulp per day by the Horn process would cost approximately \$775,000 including boiler and power plant, but not including designing, engineering and contracting expenses. The erection of a 100 to 300 ton pulp plant would be more desirable, as pulp could be produced at less expense than in a smaller plant.

A plant to merely separate the long and fine fibered portion of the bagasse and producing a blending lap pulp would cost \$500,000 plus \$150,000 or \$650,000. A bleaching plant and additional equipment would add \$2,000,000 to the cost. The range here for paper was \$954,000 to \$2,256,000 to do the same job as the bagasse plant estimates ranging from \$650,000 to \$2,650,000. Since this pulp is to be blended, bleaching might well be done at the finishing mill—thereby reducing the bagasse pulping mill closer to the lower figure.

They are very supple, longer, thin walled, very pliable, and soft.

Plastics Possibilities

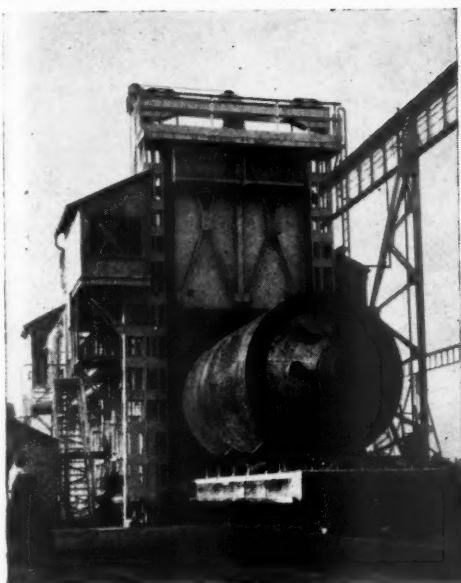
Bagasse has been made into molding plastics and offers a good potential supply of molding powders. Its use is not limited to 100% bagasse but can be used in conjunction with bakelite, aniline, furfural, hexamethylene tetramine, urea, cresol and other chemicals. The costs range from \$0.023 per pound and up. Bagasse resin and plastics can be laminated.

The characteristics of thermoplastic resins based upon bagasse suggested its use as a possible substitute for shellac in the manufacture of phonograph records, with the result that after a period of preliminary experimentation commercial production was started in Sept., 1942.

Bagasse contains approximately 19% lignin. In plastics, lignin is finding greater use. With pitch and/or eleo-resin it forms excellent plastics. Lignin also can be made into vanillin and other chemical products.

Pith, short fiber and ground bagasse are used as plastic fillers. When separated from the fiber, the pith forms a good absorbent for nitroglycerine in dynamite.

The alpha cellulose in bagasse has yielded pyro cotton passing both 65.5 deg.C KI test and 135 deg.C test. The alpha cellulose was made into rayon stockings. Nitrated alpha cellulose finds use in lacquers and cellulose acetates and ethyl esters find use as fiber materials such as "cellophane" type sheets, etc.



The view above shows a 12-ft. diam. by 45 ft. sulphate pulp mill digester, leaving our stress-relieving furnace at Birmingham. The structures at the right are welded steel salt cake storage bins. They hold 833 tons each.

CHICAGO BRIDGE & IRON COMPANY

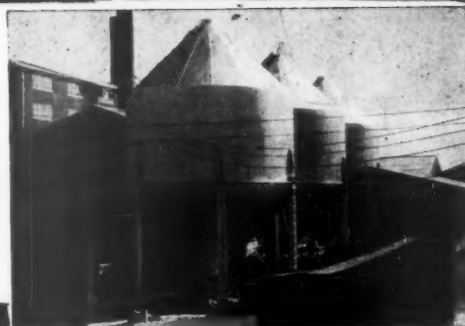
Chicago 4, 2445 McCormick Bldg.; New York 6, 3350-165 Broadway Bldg.; Cleveland 15, 2267 Guildhall Bldg.; Los Angeles 14, 1459 Wm. Fox Bldg.; Washington 4, 703 Atlantic Bldg.; Atlanta 3, 2143 Healey Bldg.; Tulsa 3, 1651 Hunt Bldg.; Houston 1, 5643 Clinton Drive; Philadelphia 3, 1653-1700 Walnut St. Bldg.; Birmingham 1, 1511 North 50th St.; San Francisco 11, 1217-22 Battery St. Bldg.; Detroit 26, 1566 Lafayette Bldg. Plants at Birmingham, Chicago and Greenville, Penna. — In Canada: Horton Steel Works, Limited, Fort Erie, Ont.

STEEL PLATE WORK

Designed and Built

to specific paper and pulp mill requirements

Two typical examples of steel plate work fabricated in our plants for the paper industry are illustrated at the left and below. We have facilities at all three of our plants for x-raying and stress-relieving shop built vessels in accordance with Paragraph U-68 of the A.S.M.E. Code for Unfired Pressure Vessels. When your mill expansion or modernization program calls for flat-bottom storage tanks, cylindrical tanks, diffusers, sulphate and sulphite digesters, steel smoke stacks and bins, address our nearest office for quotations.



American Potash Sales Force Enrolls Veterans

Five men who have returned with notable war records will assist in handling sales for Wilson & Geo. Meyers & Co., Pacific Coast representatives of American Potash & Chemical Corp.

John Bacon, lieutenant colonel in the army, upon discharge, after serving in the Aleutians and Europe, returns to the San Francisco office.

Lloyd Reeks, Jr., a captain, and John A. Foster, a lieutenant, both Army air force pilots and winners of air medals with clusters, are assigned to Los Angeles and Seattle respectively.

George W. Vaughan, lieutenant commander and flier with carrier task forces, goes to Los Angeles.

New Research Dept.

Bathurst Power & Paper Co. is planning to establish a new research department at its plant at Bathurst, New Brunswick, staffed by experienced research specialists and completely equipped.

The company has been considering the manufacture and sale of half a dozen new products that can be made from raw material at its disposal, and the task of the new department will be to perfect such new products as well as seek new manufacturing processes.

Fraser Industries Sales

James Good Conley has been appointed manager of paper sales for Fraser Industries, Inc., and John R. Cryan is assistant, according to announcement by President Aubrey Crabtree.

New Appointments To Camas Research Dept.

Additional personnel has been added to the staff of Central Technical Department, Crown Zellerbach Corp., Camas, Wash.

Thurston L. Yocum, captain of field artillery in Europe returned to the organization as Senior Research Chemist.

Howard C. Graham, formerly in charge of newsprint and groundwood research at Port Angeles division, and during the war in charge of technical inspection of certain highly specialized war materials from Radford Ordnance Works, Radford, Va., became senior research engineer on Feb. 18.

Fred L. Schmidt, a native of Texas who served in the army and graduate of Oklahoma A & M, 1939, joined as a research chemist.

Represents Strathmore

Blake Moffitt & Towne Co., San Francisco, has been appointed exclusive Pacific Coast distributors for the entire line of Strathmore papers. For many years BMT Co. has been distributor of the Strathmore line of staple papers.

Bowling At Longview

Longview Fibre Bowling League, a recreational means for men of Longview Fibre Co., Longview, Wash., continued on its way toward culmination of the second half of its split season in early April. Leaders of the eight teams as of Feb. 17:

	W	L	Pct.
Supervisors	18	10	.643
Pulp Mill	17	11	.607
Machine Room	15	15	.536


PUGET POWER RATES ARE LOWER THAN T.V.A.

Puget Power's average rate per KWH for residential and rural service was 1.67c or **10% less** than in TVA territory for the year ended June 30, 1945.* If Puget Power paid taxes on the same basis as TVA and the difference was applied to rate reductions, Puget Power's average rate would have been about **18% lower**.

*Latest available TVA figures.

PUGET SOUND POWER & LIGHT CO.

FRANK McLAUGHLIN, President




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COTTON and ASBESTOS FELTS

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LARGEST CHIPPERS EVER BUILT!

— AND PROVEN IN HEAVY DUTY SERVICE



These immense Sumner-built Pulp Wood Chippers will convert 40" diameter logs into pulp chips at a rate of 60 lineal feet of log per minute.

Driven by a 1500 horsepower motor, each unit requires a floor space of 19x23 feet.

Two of the mammoth chippers have already been delivered and a third is now under construction.

Designed and built to the recognized Sumner standards of quality, pulp wood chippers are also available in several smaller sizes.

Write for complete information.

Builders of

**SAW MILL, SHINGLE MILL
PULP and PAPER MILL MACHINERY**

for fifty years.

- Loaded on a special low-built flat car, the second of Sumner's 175 inch chippers, with its steel housing, is ready to leave the plant for its destination at the Puget Sound Pulp & Timber Company, at Bellingham.

In Canada: CANADIAN SUMNER IRON WORKS LTD., VANCOUVER, B. C.

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